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FEDERAL AND COOPERATIVE
WHITE PINE BLISTER RUST CONTROL WORK
IN THE NORTHEASTERN AND LAKE STATES.

Don't know



By
E.C. Filler,
Pathologist

Boston, Mass.,
April 30, 1924.

A.

INDEXFederal and Cooperative Blister Rust Control Work
in the Northeastern and Lake States.

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Foreword

This report of federal and cooperative blister rust control work in the Northeastern and Lake States can be more readily understood if sub-divided into six parts as follows:

1. General status of cooperative Blister Rust Control Work.

2. Status of control work in each cooperating state especially emphasizing and analyzing the 1923 work and outlining federal plans for 1924.

3. Summary and analysis of 1923 control work in all cooperating states.

4. Summary and analysis of federal control work directed by Eastern Branch Office of Blister Rust Control.

5. General plan of work for federal personnel in Northeastern and Lake States.

6. Current plan of work for federal personnel during 1924.

The data is so arranged that specific parts of the report can be taken out and used for any desired purpose. Special efforts have been made to summarize the results of the control work into tables which can be used as ready references and in the preparation of various papers, reports, etc. The discussion of the weaknesses in the personnel is considered strictly confidential.

E. C. Filler,
Pathologist.

April 30, 1924.

REPORT

The following report was prepared by the Committee on the part of the Board of Directors of the American Chemical Society, in accordance with the resolution adopted at the meeting of the Board held at New York, N. Y., on June 10, 1912.

Respectfully submitted,
J. H. M. [Signature]

Approved by the Board of Directors of the American Chemical Society, at its meeting held at New York, N. Y., on June 10, 1912.

Attest:
[Signature]

Secretary of the American Chemical Society

June 10, 1912

Report of the Committee on the part of the Board of Directors of the American Chemical Society, in accordance with the resolution adopted at the meeting of the Board held at New York, N. Y., on June 10, 1912.

The Committee on the part of the Board of Directors of the American Chemical Society, in accordance with the resolution adopted at the meeting of the Board held at New York, N. Y., on June 10, 1912, has the honor to report that it has been organized and is now in the process of carrying out its duties. The Committee is composed of the following members: [List of members]

Very truly yours,
[Signature]

Secretary of the American Chemical Society

COOPERATIVE BLISTER RUST CONTROL WORK IN THE NORTHEASTERN AND LAKE STATES.

General Summary of the Work.

The white pine blister rust (*Cronartium ribicola*) was unknowingly imported into this country from Europe about 1900. Here it was first found at Geneva, N. Y. in 1906 on cultivated black currants and in 1909 on planted white pine. A warning of its dangerous nature was issued and attempts made to eradicate the disease by systematic examination and destruction of imported white pines wherever the disease was found. This proved unsuccessful as the rust was found on native pine and *Ribes* over a large area in western Massachusetts in the fall of 1915.

Systematic scouting in 1916 showed the blister rust was generally established in the Northeastern and Lake States. An immediate conference of State and Federal officials and others interested in the forest resources of the country was held to consider the problem. All hope of eradicating the disease was abandoned and it was agreed that the only way to meet the situation was to undertake the development of practical local control measures. Accordingly in 1917, the federal government in cooperation with the infected states began experimental control work. During the period 1917 to 1921 inclusive, practical control measures were cooperatively developed which can be applied by individual pine owners through local eradication of *Ribes*.

In order to produce white pine it is essential that blister rust control work become a part of the regular procedure of growing this valuable crop, but pine owners in general do not know the disease or the different kinds of wild *Ribes*, and are not familiar with the effective methods of their removal. Without this knowledge control work cannot be accomplished. It was to meet this need, and thus assure continued production of an essential timber crop that the Federal Department of Agriculture, in 1922, entered into the present 8 year blister rust control program with the Northeastern and Lake States. This program is a joint project of the cooperating states and the Federal government. The purpose of the program is to accomplish during the period 1922-1930, the general control of the disease through *Ribes* eradication by cooperators (individuals, towns, and states) in regions where white pine is an important crop. Also it is expected that by the end of the program the methods of applying local control, the need for continued watchfulness for the disease and the necessity of occasional rescouting control areas for *Ribes* will, in general, be sufficiently well understood to enable pine owners to successfully cope with the blister rust. However, their attention will be called to the dangers

incident to Ribes regrowth. After the present emergency is over, ^{such other} educational service or regulatory assistance as they may need will be furnished through the usual channels.

State and federal cooperative funds used on experimental demonstration control areas in developing effective and cheap methods of finding and destroying Ribes and in ascertaining if they could be thoroughly enough removed to prevent commercial damage to pine, resulted in the eradication of these bushes on 1,335,767 acres and the reduction of average per acre costs from 74.0 to 18.7 cents. Under the cooperative 8-year program 481,466 acres were eradicated of Ribes in 1922 and 895,986 acres in 1923 or a total of 1,377,452 acres. In other words more area was cleared of Ribes in 1922 and 1923 than during the five year period 1917 to 1921 inclusive. This increase in the volume of work is a direct result of the efficiency of the new control program. A grand total of 2,703,219 acres have been eradicated of Ribes.

Present Status of White Pine Growth and Infection Conditions

The white pine growth of New England and New York covers 8,176,000 acres and is valued at \$217,950,400. Of this acreage 58% contains growth under 20 years old. Here in the Northeastern States the blister rust is most serious. In Wisconsin and Minnesota, the 6,300,000 acres of white pine growth is valued at 177 million dollars. Minnesota alone has 5½ million acres of white pine, but less than 10% contains young growth. This lack of reproduction is caused by fire, grazing and settlement. Due to only a few introductions of the disease, prompt application of control measures and unfavorable field conditions, the rust as yet is not a serious factor in the Lake States. Only a comparatively small acreage has needed protection.

In the Northeastern States the blister rust is generally distributed and can be found in practically every woodlot, the amount of the disease varying from a few scattered infections to 100% of the trees diseased. The rust is especially severe in New York, N.H., Maine, and Vermont where natural conditions are exceptionally favorable for the spread of the disease. The degree of pine infection is shown in the following tabulation. These studies were made by ~~running~~ compass lines across country and examining all pines on strips one rod wide. At points where the infection was greatest on or adjacent to the compass lines, small square plots were laid off and the data recorded separately.

Pine Infection Surveys in Northeastern States
1920-1922

Table #1

Strip	Miles	Acres	No. Pine Examined	% Inf. with Blister Rust	No. Plots	Acres	No. Pine Examined	% inf. with Blister Rust
Lisbon-Bath, N.H.	15.0	30	3758	13.8%	-	-	-	-
Littleton to Piermont, N.H.	39.5	79	6161	12.5%	213	49.1	7,014	51.5%
Wells River to Barnet, Vt.	28.0	56	4002	3.1%	7	1.8	385	6.2%
Lewis to Ausable Forks, N.Y.	22.9	55.8	10501	4.9%	13	14.4	12,986	15.8%
Douglas, N. Y.	5.5	11	1796	6.8%	3	.75	1,469	32.8%
Warrensburg to Pottersville, N.Y.	12.1	24.2	8139	21.0%	-	-	-	-
Ipswich, Mass.	4.4	8.8	871	5.7%	9	3.0	637	27.0%
Brunswick to Farmingdale to Woolwich, Me.	38.5	77	7046	6.3%	11	2.75	970	14.4%
TOTALS	165.9	341.8	42274	10.2%	256	71.8	23,461	27.7%

PRESENT STATUS OF ERADICATION WORK IN BLISTER RUST CONTROL PROGRAM
in Northeastern States.

Table # 2

State	Estimated acre- age white pine growth	Total acreage eradicated 1917 - 1923.	Acreage worked 1923.	Pine acreage pro- tected (66% of eradicated area)	Percent pine area pro- tected.	Pine acreage still to be protected	Total area still to be eradicated (allowing 1/3 acre- age for protection strips)	Years to complete project	Yearly acreage needed to com- plete project.	Ratio of necessary annual acreage to 1923 acreage.
Maine	3,000,000	712,411	336,452	470,191	15.6	2,529,809	3,794,713	6	632,452	1.87 Times
New Hamp.	2,500,000	1,042,846	268,237	688,278	27.5	1,811,722	2,717,583	6	452,930	1.68 "
Vermont	86,000	62,680	25,190	41,368	48.1	44,632	66,948	2	33,474	1.32 "
Mass.	775,000	434,173	201,931	286,554	36.9	488,446	732,669	3	244,223	1.20 "
R. I.	125,000	154,305	31,308	101,841	81.4	23,159	34,738	1	34,738	1.10 "
Conn.	(75,000 in Litch. 190,000 Co.)	37,407	14,062	24,688	12.9 32.8 Litch.Co.	50,312 Litch. Co.	75,468	3 (1 Agent)	25,156	1.78 " 1.78
New Eng.	8,676,000	2,445,882	877,180	1,612,920	22.1	9,498,080	7,422,120	6	1,237,020	1.41 "
New York	1,500,000	224,903	15,459	148,436	9.8	1,351,564	2,027,346	6	337,891	21.8 "
New Eng.& New York	8,176,000	2,668,725	892,639	1,761,358	21.4	6,299,644	9,449,466	6	1,574,911	1.76 "

State	Estimated cost of white pine - 1904 - 1905	Estimated cost of white pine - 1905 - 1906	Estimated cost of white pine - 1906 - 1907
Alabama	2,000,000	1,000,000	1,000,000
Arkansas	2,000,000	1,000,000	1,000,000
California	2,000,000	1,000,000	1,000,000
Colorado	2,000,000	1,000,000	1,000,000
Connecticut	2,000,000	1,000,000	1,000,000
Delaware	2,000,000	1,000,000	1,000,000
District of Columbia	2,000,000	1,000,000	1,000,000
Florida	2,000,000	1,000,000	1,000,000
Georgia	2,000,000	1,000,000	1,000,000
Idaho	2,000,000	1,000,000	1,000,000
Illinois	2,000,000	1,000,000	1,000,000
Indiana	2,000,000	1,000,000	1,000,000
Iowa	2,000,000	1,000,000	1,000,000
Kansas	2,000,000	1,000,000	1,000,000
Kentucky	2,000,000	1,000,000	1,000,000
Louisiana	2,000,000	1,000,000	1,000,000
Maine	2,000,000	1,000,000	1,000,000
Maryland	2,000,000	1,000,000	1,000,000
Massachusetts	2,000,000	1,000,000	1,000,000
Michigan	2,000,000	1,000,000	1,000,000
Minnesota	2,000,000	1,000,000	1,000,000
Mississippi	2,000,000	1,000,000	1,000,000
Missouri	2,000,000	1,000,000	1,000,000
Montana	2,000,000	1,000,000	1,000,000
Nebraska	2,000,000	1,000,000	1,000,000
Nevada	2,000,000	1,000,000	1,000,000
New Hampshire	2,000,000	1,000,000	1,000,000
New Jersey	2,000,000	1,000,000	1,000,000
New Mexico	2,000,000	1,000,000	1,000,000
New York	2,000,000	1,000,000	1,000,000
North Carolina	2,000,000	1,000,000	1,000,000
North Dakota	2,000,000	1,000,000	1,000,000
Ohio	2,000,000	1,000,000	1,000,000
Oklahoma	2,000,000	1,000,000	1,000,000
Oregon	2,000,000	1,000,000	1,000,000
Pennsylvania	2,000,000	1,000,000	1,000,000
Rhode Island	2,000,000	1,000,000	1,000,000
South Carolina	2,000,000	1,000,000	1,000,000
South Dakota	2,000,000	1,000,000	1,000,000
Tennessee	2,000,000	1,000,000	1,000,000
Texas	2,000,000	1,000,000	1,000,000
Vermont	2,000,000	1,000,000	1,000,000
Virginia	2,000,000	1,000,000	1,000,000
Washington	2,000,000	1,000,000	1,000,000
West Virginia	2,000,000	1,000,000	1,000,000
Wisconsin	2,000,000	1,000,000	1,000,000
Wyoming	2,000,000	1,000,000	1,000,000

Fig table 2 wrong
see conference (9/20)
report for correction

General Status of Blister Rust Control Work in Northeastern States.

The general status of the control work in the northeastern states is summarized in the following tables # 2 - 11

In analyzing table # 2 the following points should be noted:

1. No future re-eradication work is considered.
2. The acreage of white pine growth is merely an estimate made by the state officials. Only two states, Connecticut and Rhode Island have accurate

pine surveys. However, fairly accurate figures have been obtained in Vermont and New Hampshire from general surveys.

3. The acreage eradicated includes protection strips as well as pine areas, also a small amount of re-eradication work.
4. The pine acreage covered to date in each state is based on 66% of the total area eradicated of Ribes. This percent figure was taken as representing a conservative average for all states.
5. The total area still in need of eradication is based on the sum of the pine acreage yet to be worked and an additional 33 1/3% allowed for protection strips.
6. Although Connecticut has 190,000 acres of pine, 98% of it, outside of Litchfield County, is naturally protected from blister rust, due to scarcity of wild Ribes. However, in Litchfield County, there is about 75,000 acres of pine in need of protection.

The table shows that it will take three states, Maine, New Hampshire and New York, the full remaining six years to complete the original control project. But to accomplish these results, Maine must cover 1.87 times as much acreage this year as last and maintain the same rate of progress during the next five years, while in New Hampshire and New York, the rate of increase must be maintained at 1.68 and 21.8 times respectively the 1923 figures. The other four states will complete their original control program in from one to three years. However, in Vermont and Massachusetts it may take an additional year or more to cover all the scattered pine lots. In Rhode Island it will require another year to protect the remainder of the potential pine land. In order to complete the entire project as outlined it will be necessary for all states to increase the yearly acreage cleared of Ribes above that done during 1923. There is also need for a varying amount of re-eradication work in all the states. A more detailed analysis is given under the status for each state.

The figures given above can be no more accurate than the estimated pine acreage. This statement clearly shows the need of accurate pine surveys. Each state will be urged to complete a general survey of its pine resources at the earliest possible date.

Summary of Cooperative Ribes Eradication Work in Northeastern
and Lake States During 1917 - 1923.

Table #3

State	Acres	% of total acres worked in each state	No. Wild	Ribes Cult.	Total Cost	Per acre Values Cost Ribes
Maine	712411	26.3	2365505	18761	51181.78	0.072 3.3
N. H.	1042846	38.5	12111752	95857	206796.13	.198 11.6
Vt.	62680	2.3	797297	2328	36010.50	.574 12.7
Mass.	434173	16.0	5951845	73842	*86461.91	.248 13.7
R. I.	154305	5.7	109916	6650	23117.41	.149 0.7
Conn.	37407	1.3	**551097	256	*** 21621.75	.590 16.3
N. Y.	224903	8.3	6193455	34673	287436.75	1.278 27.5
Wisc.	28552	1.0	2035838	19	17915.91	.603 71.3
Minn.	5942	.2	**** 407278	118	15180.23	2.55 81.7
Totals	2703219	-	30523983	232504	745722.37	.284 11.3

* No cost figure available for Massachusetts in 1917

** No Ribes figure available for Connecticut in 1917

*** No cost figure available for Connecticut in 1918.

**** No Ribes figure available in Minnesota in 1917.

Note: Acreage for 1917 omitted in obtaining per acre cost figure ^{for} Mass.
 " " 1917 " " " " Ribes " Conn.
 " " 1918 " " " " cost " "
 " " 1917 " " " " Ribes " Minn.

These cost and Ribes figures are also omitted in grand totals.

1916 Eradication Data

<u>Acres</u>	<u>Cult. Ribes</u>	<u>Wild Ribes</u>	<u>Ribes per Acre</u>
15,703	2,200	69,000	4.39

Note: These figures cover all work in Massachusetts, Connecticut, and Wisconsin. The New York figures are not included. No cost data is available.

Table # 3 shows that during the period 1917 to 1923 a total of 2,703,219 acres were cleared of Ribes in North-eastern and Lake States. The percent of the total acreage worked in the various states is as follows: New Hampshire 38.5%; Maine 26.3%; Massachusetts 16.0%; New York 8.3%; Rhode Island 5.7%; Vermont 2.3%; Connecticut 1.3%; Wisconsin 1.0%; and Minnesota .2%. Cost figures are lacking for the work done in Massachusetts in 1917 and Connecticut during 1918. Excluding from the totals the work performed in these two states for the years when the cost figures are lacking, gives a cost of \$745,722.37 or a per acre cost of 28.4 cents for the acreage on which definite cost figures were kept. During the period 1916 to 1923, a total of 30,592,983 wild Ribes and 234,704 cultivated bushes were destroyed. These totals however do not include the Ribes pulled in New York during 1916 or those eradicated in Connecticut and Minnesota during 1917. Excluding the eradication work in New York in 1916, a grand total of 2,718,922 acres have been cleared of Ribes during the period 1916 to 1923. This does not include work on the demonstration areas at North Hudson and Eau Galle. A better summary of the control work for which definite figures are obtainable is given in the following table:

Summary of Cooperative Ribes Eradication Work in the Northeastern
and Lake States - Period 1918 to 1923.

Table #4

State	Acres	% of total acreage worked in each state	No. Ribes		Total Cost	Per Acre Values	
			Cult.	Wild		Cost	Ribes
Maine	707291	28.9	17362	2317298	\$47053.78	\$0.066	3.27
Vt.	56680	2.3	2328	752619	28901.18	.509	13.3
R. I.	146069	5.9	5847	107281	20497.51	.140	.73
Conn.	33707	1.3	256 [†]	551097	* 18476.75	.548	16.3
N. H.	1019755	41.8	95357	11649252	197097.91	.193	11.4
Mass.	348110	14.2	27600	5769274	86461.91	.248	13.7
N. Y.	94551	3.8	14103	6072693	248655.95	2.63	64.2
Wis.	28299	1.1	19	1997838	17139.98	.605	70.5
Minn.	4981	.2	118	407278	14180.17	2.847	81.7
Totals	2439443	-	162990 [†]	29624630	678465.14	.278	12.14

* No cost figure available for 800 acres eradicated in Connecticut during 1918.

Note: Connecticut acreage for 1918 omitted in obtaining per acre cost figure for Connecticut, also in grand total cost figure.

Table #4 shows that in the Northeastern and Lake States 2,439,443 acres were eradicated of 29,624,630 wild Ribes during the period 1918 to 1923 at a total cost of \$678,456.14 or at a per acre cost of 27.8 cents. The percent of the total acreage worked in the various states is as follows: New Hampshire 41.8%, Maine 28.9%, Massachusetts 14.2%, Rhode Island 5.9%, New York 3.8%, Vermont 2.3%, Connecticut 1.3%, Wisconsin 1.1%, and Minnesota .2%. The wild Ribes averaged 12.14 bushes per acre and ranged from .7 of a bush in Rhode Island to 81.7 bushes per acre in Minnesota. The cost per acre varies from 6.6 cents in Maine to \$2.63 in New York and \$2.85 in Minnesota. A total of 162,990 cultivated bushes were destroyed during this period.

Can not compare cost per acre
1917-21 with 1922-23 as
not same portion entering into
cost.

Summary of Cooperative Ribes Eradication Work Blister Rust Control
in Northeastern and Lake States -- Period 1918 - 1923 --

Table # 5

Year	1918	1919	1920	1921	1922	1923	Totals
Acreage worked	138938	254503	282329	386221	481466	895986	2439443
% of total acreage worked each year	5.6	10.4	11.5	15.8	19.7	36.7	100
Wild Ribes pulled. Estimate crew count	2532087	4708252	5139843	3688814	5381614	8173960	29624630
Cult. Ribes pulled	22150	27877	26054	15774	16061	55074	162990
Total cost	\$102888.20	\$142743.71	\$96985.27	\$72440.10	\$99852.01	\$163555.85	\$678465.14
Cost per acre	\$.74	.56	.34	.187	.20	.182	\$0.278
Ribes per acre	18.2	18.5	18.2	9.5	11.2	9.1	12.1

Table # 5 also summarizes the control work performed in the Northeastern and Lake States during the period 1918 to 1923 but presents the data by years. The percentage of the area worked each year to the total acreage (2439433 acres) is as follows: 1918, 5.6%; 1919, 10.4%; 1920, 11.5%; 1921, 15.8%; 1922, 19.7%; and 1923, 36.7%. Since the new control program began in 1922 over 56.4% of the entire acreage has been worked and during 1923, 87.3% more acreage was covered than during 1922. The cost of eradication work per acre has been reduced from 74¢ in 1918 to 18.2¢ in 1923. The number of Ribes per acre averages 12.1 bushes and ranges from 9.1 bushes in 1923 to 18.5 Ribes in 1919. These Ribes figures are merely based on crew estimates.

Advance scouting increased acreage
erad. & hence lowered average no. of
Ribes per acre

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN BLISTER RUST CONTROL WORK
IN NORTHEASTERN AND LAKE STATES---1917-1923.

Table # 6

STATE		MAINE				NEW Hampshire				VT.		MASS.				R. I.		CONN.		N. Y.		TOTALS NEW ENGLAND AND NEW YORK												WISC.			
Year	No. Individ. Coop.	Amt. Paid By Individ. Coop.	No. Towns		Amt. Approp. by Towns	No. Individ. Coop.	Amt. Paid by Individ. Coop.	No. Towns		Amt. Approp. By Towns	No. Individ. Coop.	Amt. Paid by Individ. Coop.	No. Towns		Amt. Approp. by Towns	No. Individ. Coop.	Amt. Approp. by Individ. Coop.	No. Towns		Amt. Approp. by Towns	No. Individ. Coop.	Amt. Paid by Individ. Coop.	% of Total	No. Towns Approp.	% of Total	No. Towns Worked	Amt. Approp. by Towns	% of Total	No. Individ. Coop.	Amt. Paid by Individ. Coop.							
			Appro.	Worked				Appro.	Worked				Appr.	Worked				Appr.	Worked																		
1917	-	-	-	-	-	5	\$42.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	.2	\$42.86	.04	-	-	-	-	-	-					
1918	-	-	-	-	-	8	810.95	43	30	\$7,200	-	-	-	-	-	6	\$550.00	-	-	-	-	-	2	\$4,772.50	16	.5	6,133.45	5.8	43	12.4	30	\$7,200.00	8.2	-	-		
1919	-	-	-	-	-	34	2,053.65	38	50	6,310	1	\$270.00	15	1,575.00	-	-	-	-	-	-	-	5	8,061.91	55	1.6	11,960.56	11.3	38	10.9	50	6,310.00	7.2	-	-			
1920	-	-	-	-	-	97	4,764.37	50	48	8,000	29	515.61	31	1,877.22	1	1	\$500	-	-	-	-	-	11	2,492.94	168	5.1	9,650.14	9.1	51	14.7	49	8,500.00	9.7	19	\$871.81*		
1921	30	\$1,163.07	-	-	-	23	2,688.51	31	33	4,350	31	3,235.50	35	2,434.00	3	3	1,200	-	-	-	-	-	23	3,330.99	142	4.3	12,852.07	12.1	34	9.9	36	5,550.00	6.3	43	1,047.18*		
1922	464	4,409.32	8	8	\$1,300	148	8,004.82	49	49	16,900	125	5,502.22	194	3,222.67	-	-	-	-	2	\$187.50	2	3	\$2,300	38	3,219.90	971	29.2	24,546.43	23.1	59	17.1	60	20,500.00	23.4	20	332.50	
1923	1090	8,760.34	39	39	7,115	121	7,635.45	81	81	31,915	220	7,247.34	470	6,894.90	-	-	-	1	15.36	9	867.45	1	3	500	57	9,548.63	1968	59.1	40,969.47	38.6	121	35.0	123	39,530.00	45.1	30	603.75
TOTAL	1584	14,352.73	47	47	\$8,415	436	\$26,000.61	292	291	\$74,675	406	16,770.67	745	16,003.79	4	4	\$1,700	7	\$565.36	11	1,054.95	3	3	\$2,800	136	\$31,426.87	3325	100.0	106,154.98	100.0	346	100.0	345	87,590.00	100.0	112	\$2,855.24

NOTE: This summary includes only cooperators who eradicated wild Ribes. During 1923, an additional 698 individuals, in New England cooperated in eradicating cultivated Ribes. The town money refers to yearly town funds appropriated, not to the amount of town funds used.

* Includes some money expended by Indian Service and Conservation Commission.

MINN.	Indiv. Coop.	Amt.
1921-----	9	\$128.60
1922-----	2	25.70
	11	\$154.30

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Analysis of Table #22.

"Town & Individual Cooperation in Blister Rust Control 1917-1923."

During the period 1917 to 1923, a total of 3448 individuals or associations in the Northeastern and Lake States expended \$109,164.52 in blister rust control work. In New England and New York alone, \$106,154.08 was spent by 3325 individual cooperators. The proportion of cooperators obtained in this region each year to the total number for all years is as follows: 1917, .2%; 1918, .5%; 1919, 1.6%; 1920, 5.1%; 1921, 4.3%; 1922, 29.2%; and 1923, 59.1%. The proportion of individual funds expended each year to the total amount for all years varies in the following manner: 1917, .04%; 1918, 5.8%; 1919, 11.3%; 1920, 9.1%; 1921, 12.1%; 1922, 23.1%; and 1923, 38.6%. Thus since the new control program began in 1922, 88.3% of the total number of cooperators in New England and New York have been obtained and 61.7% of the total amount of individual funds have been expended. In 1923 an additional 698 persons cooperated in eradicating cultivated Ribes on their lands. All states during the period 1917-1923 had individual cooperation, ranging from 7 cooperators in Rhode Island to 1584 in Maine, while the amount expended by individuals in the various states ranged from \$565.36 in Rhode Island to \$31,426.87 in New York. The proportion of individual money expended in the various states to the total amount of such funds used in the Northeastern and Lake States is as follows: New York, 28.7%; New Hampshire, 23.8%; Vermont 15.3%; Massachusetts, 14.6%; Maine, 13.1%; Wisconsin, 2.6%; Connecticut, .9%; Rhode Island, .5%; and Minnesota, .1%.

In four states, New Hampshire, Massachusetts, Maine and Connecticut, 346 towns appropriated \$87,590 for Ribes eradication work during the period 1918 to 1923. The New Hampshire towns have been making blister rust control appropriations ever since 1918, but in Maine and Connecticut town money was not obtained until 1922, while Massachusetts received town support only in 1920 and 1921. The proportion of the yearly number of town appropriations to the total number in New England is as follows: 1918, 12.4%; 1919, 10.9%; 1920, 14.7%; 1921, 9.9%; 1922, 17.1%; and 1923, 35%; while the proportion of the yearly amount of town money raised to the total for all years ranges in the following manner: 1918, 8.2%; 1919, 7.2%; 1920, 9.7%; 1921, 6.3%; 1922, 23.4%; 1923, 45.1%. In other words, since the new control program began in 1922 47.1% of the total number of town appropriations have been obtained and 68.5% of the total town funds have been appropriated. Of the total amount of town funds subscribed for all years, 85.2% of it has been raised in New Hampshire.

The above analysis of town and individual expenditures in blister rust control work shows a healthy increase in the amount of such cooperation especially since 1922. However, all

states need additional cooperation from individuals in order to complete their control programs in the time specified. This is especially true in New Hampshire, Maine, and New York. Although in 1923 New Hampshire greatly increased the amount of town funds over 1922 yet there was a decrease in individual cooperation. Maine led all states in number of cooperators in 1923 but the amount expended by such persons averaged only \$8.03. On the other hand, New York headed the list as regards amount of individual money expended, yet it had only 57 cooperators in 1923, or less than any state except Rhode Island and Connecticut. Special efforts will be made in all states to get a greater number of individual cooperators so as to speed up the control work.

Additional town funds are needed in Maine, New Hampshire and Vermont. In Maine and New Hampshire additional towns will be urged to cooperate and larger appropriations will be recommended, especially in Maine. Up to 1923, Vermont has never had any town funds. In order to overcome the difficulties encountered with a small state appropriation, a few of the pine towns in Vermont will be asked to subscribe funds to pay excess labor charges of foremen and men and transportation expenses between jobs on individual cooperators lands. The town appropriations in Connecticut, except in one case, consist of individual subscriptions rather than funds voted at town meetings. Only small increases in such funds are needed in Connecticut. In New York the state appropriation is so large town money is not especially needed. In fact such cooperation would have to be with counties rather than towns, as New York does not have the town organization for raising funds. The work in Massachusetts is such that town money is not needed provided sufficient state funds are obtained to pay for the Ribes scouting work, and to furnish foremen for a limited time to cooperating pine owners.

Summary and Analysis of Cooperative Blister Rust Control Work
by States.

MAINEStatus of Work.

Maine has 3,000,000 acres of white pine valued at \$50,000,000 according to an estimate made by the state forestry department. Lumbering is one of Maine's chief industries, ranking fifth in importance. White pine makes up 37.6% of the total lumber cut in the state. During 1919 and 1920 the white pine in about twenty towns in York County was type-mapped. The bulk of the white pine is located in the five southwestern counties of the state, but no general survey has ever been made.

During the period 1917 to 1922 inclusive, a total of 375,959 acres were cleared of Ribes. In 1923, an additional 336,452 acres were worked, or a ~~general~~ ^{total} for all years of 712,411 acres. Allowing one third of this acreage for protection strips, not more than 470,191 acres of pine have been protected. Therefore, there remains 2,529,809 acres of pine in need of protection, or a total of 3,794,713 acres that must be covered. To work this area in the remaining six year period of the eight^{year} program, 632,452 acres must be cleared of Ribes each year, or an equivalent of 1.87 times the amount eradicated in 1923. There is a possibility that the total amount of pine in the state is overestimated; however, in any case Maine has the greatest task on its hands of any state. With a small state appropriation and only four district agents, it will be necessary for each man to get 155,613 acres covered each year by means of cooperation with towns and individuals. The results of the control program are summarized in the following two tables.

These figures wrong for each state

Summary of Cooperative Ribes Eradication Work in Maine
During the Period 1917 to 1923.

Table # 7

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	5120	1399	48,207	\$4128.00	.81	9.41
1918	4910	235	91,862	5179.23	1.05	18.70
1919	9216	-	333,775	6136.10	.666	36.20
1920	10283	636	176,788	4994.05	.486	17.19
1921	156221	708	56,304	3398.76	.022	.36
1922	190209	3688	449,287	8012.48	.042	2.3
1923	336452	12095	1209,282	19333.16	.057	3.6
Totals	712411	18761	2365,505	\$51181.78	0.072	3.3

Summary of Individual and Town Cooperation in Blister Rust
Control Work in Maine Period 1917- 1923.

Table # 8

Year	No. Indiv. Coop.	% of Total	Amt sub- scribed by Individuals	% of Total	No. Towns Approp.	% of Total	No. Towns Worked	Amt. Approp. Towns.	% of Total
1917	-	-	-	-	-	-	-	-	-
1918	-	-	-	-	-	-	-	-	-
1919	-	-	-	-	-	-	-	-	-
1920	-	-	-	-	-	-	-	-	-
1921	30	1.9	\$1163.07	8.1	-	-	-	-	-
1922	464	29.3	4409.32	30.8	8	17.0	8	\$1300.	15.4
1923	1090*	68.8	8760.34	61.1	39	83.0	39	7115.	84.6
Totals	1584	100.0	\$14332.73	100.0	47	100.0	47	8415.	100.0

*58 additional persons also cooperated in eradicating cultivated bushes.

The Ribes factor in Maine is a peculiar one, in that the bushes while numerous, yet are small in size and confined to more or less definite sites such as stream courses, swamps, fence rows and the like. Consequently, preliminary scouting is a practical and effective means of locating the bushes, and large areas can be eliminated as Ribes free sections at a very low cost. Unlike southern New England, pine infection is generally scattered throughout the pine region in Maine. According to the agents, infection can be found in most every pine lot, the amount of disease varying from a few cankers to over half the stand infected. The majority of the cankers have originated since 1918. The ³⁸three mile strip line survey in 1921 from Brunswick to Woolwich, Maine, showed that 6.3% of the pine on the strip were diseased, and that 85% of the cankers had originated in 1919. During 1923 the agents reported heavy infection on all kinds of Ribes including cultivated ^{red}currants. The disease has apparently gradually spread out from such old infection centers as Kittery Point and Brunswick.

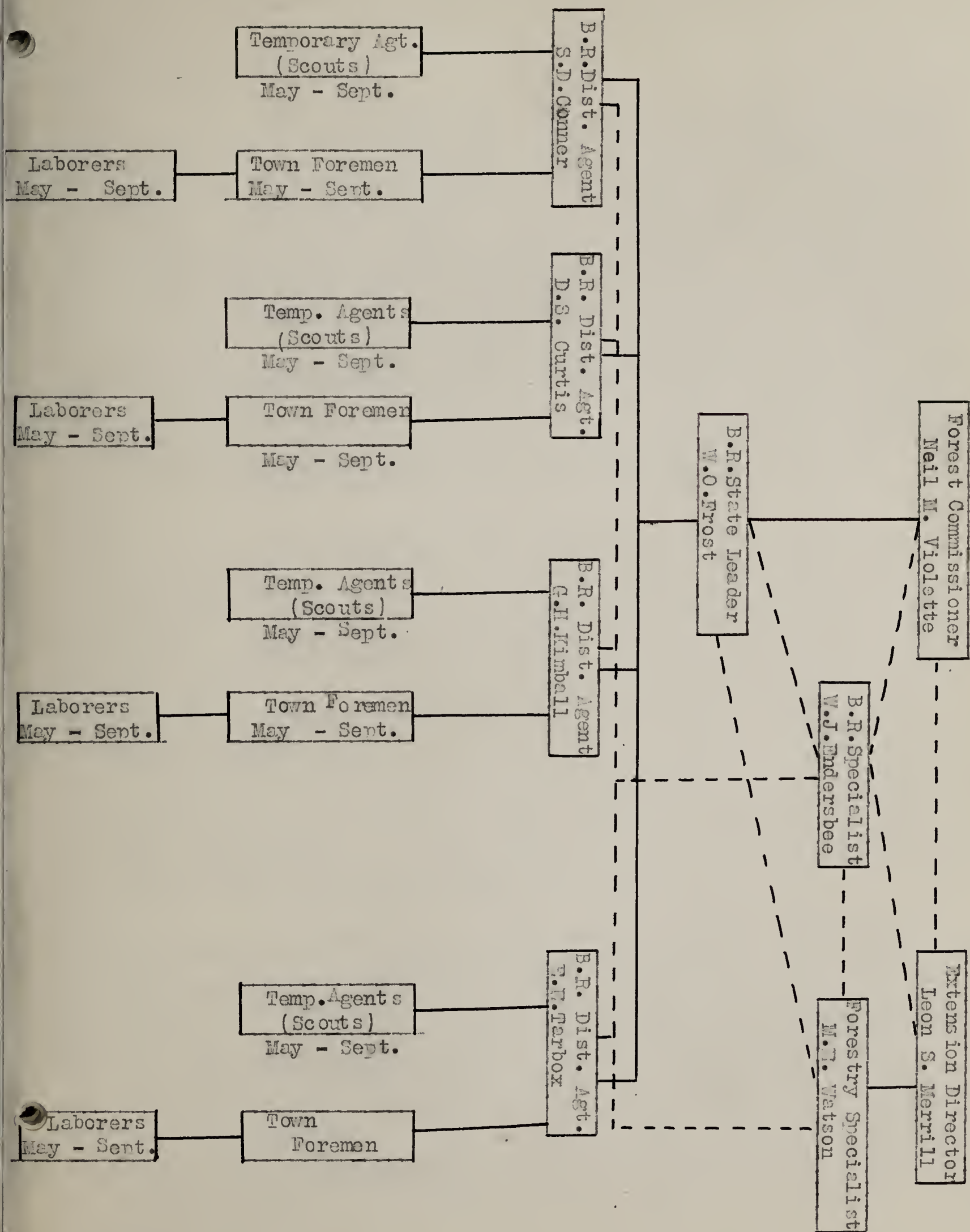
The localization of the Ribes has had a direct bearing on the method of procedure in the control program. Ribes eradication is carried on in those towns making appropriations for blister rust control, the town money being spent to employ foremen to supervise the local eradication work. Definite control areas are chosen in each town by the selectmen and the blister rust agents. The educational and eradication efforts are then confined to clearing those areas of Ribes. During the eradication season about a dozen men are employed as assistant agents or scouts and paid from state or federal funds. These scouts, with some help from the agents, scout the designated areas block by block locating the Ribes sites and interviewing the pine owners on whose land the bushes occur. The disease and its control is explained to the owner, his cooperation solicited, and arrangements made regarding the date he will be ready for the town foreman to assist him in destroying the Ribes. If between the Ribes sites the scout encounters a few bushes, he personally pulls these. However, as a rule there are few scattered Ribes. The pine owner must furnish all the labor for the Ribes eradication work, the town foreman being available to supervise the work and to aid to a certain extent in pulling the bushes. After the eradication work is completed each job is checked either by the town foreman, the scout or the agent. In each case a definite record is kept of the entire work, and the location of the eradicated areas marked on a map according to a definite plan.

Organization.

The blister rust organization in Maine since 1922 has consisted of four permanent district agents working under the direction of a state leader who is directly responsible to the state forest commissioner who has the regulatory authority of the state forestry department with whom the Bureau of Plant Industry co-operates. The Bureau and the state forestry department also cooperate in the educational phases of blister rust control work with the state extension service through its state director. Each agent has been assigned to a definite district and is responsible for all blister rust educational and eradication work in his territory. During the field season each agent supervises the work of three or more assistant agents or scouts, and the town foreman. No state checker of eradication work is used. One can visualize the organization from the following chart.

BLISS HUGH OCTOPOL ORGANIZATION
STATE OF MAINE - 1923.

18.



Results Accomplished in Blister Rust Control Work during 1923.

Ribes Eradication.

During 1923, four agents secured 39 town appropriations totaling \$7,115. In addition, the agents and their temporary assistants obtained 1148 cooperators who expended a total of \$8760.34 in control work. 1090 of these cooperators eradicated wild Ribes and 58 destroyed their cultivated bushes. This cooperative work with individuals can be summarized as follows: 6 owners eradicated 278 cultivated bushes at a cost of \$8 and 47 persons destroyed 32,456 Ribes on 4356 acres at a cost of \$997.60 or a per acre cost of 27 $\frac{1}{2}$ ¢. With supervision, 1043 co-operators eradicated 1,158,962 wild Ribes on 30,999 acres. This supervised work cost \$14,654.73 or 51¢ per acre, the individuals paying \$7754.74, and the towns expended \$6899.99 for town foremen to supervise the eradication of the Ribes. These cost figures for the supervised work also cover the cost of destroying 11,817 cultivated bushes.

In addition, the fourteen federal and state scouts cleared 301,097 acres of 13,862 wild Ribes at a cost of \$3672.83 or a per acre cost of 1.2 cents, the state expending \$860.30 and the Government \$2812.53 for this work. During the year a grand total of 1,209,282 wild Ribes were destroyed on 336,452 acres at a cost of 5.7¢ per acre, or an increase in acreage worked over the 1922 figures of 77%. The scouts, during 1923, eradicated the Ribes on 89.4% of the total acreage worked. However, for every bush pulled by the scouts the individuals destroyed 87.2 bushes on those areas designated by the scouts for crew work. A total of 1895 men were engaged in eradication work during the season, 1832 of these being classified as owners' labor. This number is in addition to the 1148 pine owners who cooperated in control work.

The agents made 51 checks covering 802 acres in areas where the eradication work had not been supervised. The owners reported that 17332 bushes were destroyed on these tracts. In checking these areas the agents found 529 Ribes. In other words, the owners had destroyed 96% of the total number of Ribes in the original working. In addition, the agents and scouts made 1063 checks covering 13,988 acres in sections where the work had been supervised by town foremen. These checks showed the crews eradicated over 99% of the bushes in the initial working. However, the accuracy of the Ribes figures in these checks is questionable.

Frost estimates 117,000 acres of pine were protected by the eradication work. Only 20 acres covered during 1923 had been previously cleared of Ribes. Although 12,095 cultivated bushes were destroyed, no compensation was paid, as all the bushes were found diseased.

Educational Work.

During the year the agents gave talks at 90 meetings attended by 4275 people, placed 86 exhibits in 72 towns, distributed 4576 publications in 137 towns, published 136 news items reaching 122 towns, and placed 350 posters in 78 towns. A total of 2854 initial interviews and 542 follow up calls were made. Demonstrations of the disease were given to 689 individuals, and 195 such group demonstrations were attended by 418 persons; also demonstrations of eradication methods were made to 394 individuals, and 115 such group field meetings 275 people were present.

Blister Rust Control Expenditures in Maine.

During the calendar year 1923, a total of \$37752.04 was spent on control work in Maine, the individuals paying \$8760.34, the towns \$6899.99, the state \$6790.71 and the federal government \$15,301.00. This \$37,752.04 was expended according to projects in the following proportion: eradication 51.2%, education 34.5%, supervision 11.7%, Miscellaneous 2.5%, and field data .02%. Under the project Miscellaneous \$500 was used on Nursery Inspection work. A total of \$19333.16 was spent on Ribes eradication by the various cooperators who paid for the work in the following proportion: state 4.4%, Government 14.5%, town 35.6%, and individuals 45.3%. Basing the cost per acre on the total amount spent for all projects, during 1923, gives a per acre cost of 11.2¢ or an increase of 96.4% over the eradication cost of 5.7¢ per acre. The federal balance available for the remainder of the fiscal year January 1 - June 30, 1924, is \$6781.80, while the state balance is \$1456.79. For the fiscal year 1925 Frost estimates \$5500 state appropriation, \$8000 town money, and \$10,000 individual funds or a total of \$23,500.

Service - can not spend own funds for eradication

Commendations.

In spite of a small state appropriation and only four permanent blister rust control agents, Maine has made very commendable progress in control work since the new program was started in 1922. During 1922 and 1923, a total of 526,661 acres were cleared of Ribes, or 183% more acreage than covered during the five year period 1917-1921. Town appropriations for blister rust control were obtained for the first time in Maine during 1922, when 8 towns subscribed \$1300. In 1923, 39 towns appropriated \$7115, or an increase in town funds over 1922 of 447%. The number of individuals cooperating in control work increased from 464 in 1922, spending \$4409.32, to 1148 in 1923 expending \$8760.34, or an increase in private expenditures over 1922 of 98.7%. The two following tables show the information in detail.

Comparison of Results in Cooperative Blister Rust Control Work in Maine Between Periods 1917-1921 and 1922-1923.

Table #9

Period	Total Acreage	Total Wild	Ribes Cult.	Total Cost	Cost per acre	No. Coop. Towns	Amt. Town Money Approp.	No. Individ. Coop.	Amt. pd by Individ. Coop.
1917-1921	185750	706936	2978	23836.14	.13	0	-	30	1163.07
1922-1923	526661	1658569	15783	27345.64	.05	47	8415.	*1554	13169.66
Total	712411	2365505	18761	51181.78	.07	47	8415.	1584	14332.73
% Total Worked in 1922-1923	73.9	70.1	84.1	53.4				98.1	91.8

*58 Individuals also cooperated in eradicating cultivated bushes.

Comparison of Results in Cooperative Blister Rust Control Work
in Maine Between 1922 and 1923.

Table 10

Year	Total Acreage	Total Wild Ribes	Cult. Ribes	Total Cost	Cgst Acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. pd. by Indiv. Coop.
1922	190,209	449287	3688	8012.48	.042	8	\$1300.	464	\$4409.32
1923	336,452	1209282	12095	19333.16	.057	39	7115.	1090*	8760.34
% In- crease or De- crease	+76.8	+169.1	+227.9	+141.3	+35.7	+387.5	+447.9	+134.9	+98.7

* 58 Individuals also cooperated in eradicating cultivated bushes.

The eradication work was, ^{much better organized during 1923 and} made more effective by the use of town foremen to supervise the individual cooperator's work, and by increased and improved checking. The Maine system of cooperation with individuals develops their interest in blister rust control and educates them as to the best method of carrying on present and future eradication work.

Maine is also fortunate in having four exceptional-ly capable agents, who are directly responsible for producing most of the good results. There was also closer contact between the leader and agents during the year. Maine was the first state to develop a definite state Blister Rust policy, which was prepared by Mr. Dana, also one of the first states to appoint a forest extension specialist, who was selected from the blister rust agent personnel.

The following discussion of weaknesses and plans for the 1924 work in Maine include suggestions offered by W. J. Endersbee.

Weaknesses in the Control Work in Maine.

I. Personnel.

The state leader is probably the weakest link in the organization because of his inability to effectively handle his job. His lack of ability to cooperate with others has greatly handicapped effective cooperation with the extension forces and the specialists. His lack of leadership qualities have resulted in inadequate plans, organization and development of the work, ~~and full utilization and development of the work,~~ and full utilization of the agents' abilities. The characteristic handicaps of the leader are as follows: inclined to be sensitive, erratic, suspicious, jealous, worry over details, resent criticisms or suggestions, to complain and find fault, to lean on agents for support, lacks judgment, initiative, vision, organizing ability and analytical and clerical ability. On the other hand, he has a forceful and pleasing personality, is conscientious, willing, frank, reliable, and a good worker. In addition he has a good knowledge of Maine conditions and the Blister Rust work in general, is popular in the state and fits well at the State House.

Curtis is inclined to be rather unscrupulous, while Connor is too fond of preconceived ideas and too conservative in his views. However, these men have many good qualities that especially fit them for their work.

II. Policy and Plans.

The state blister rust policy does not include a statement concerning the white pine policy. Maine has no detailed state or district plan of work covering all phases of the control program.

III. Educational Work.

1. Lack of organized publicity and inadequate amount of such material.

2. Lack of state funds for educational material.

3. Lack of effective contact with extension forces and utilization of all agencies for educational work.

4. Temporary, inexperienced men are doing the bulk of the intensive educational work. (interviews and demonstrations.)

5. Lack of contact with pine owners of Ribes free land.

IV. Eradication Work.

1. Many loose ends due to all cooperators not clearing land of Ribes (non-resident and delinquent owners.)

2. Lost time of foremen due to cooperators not being ready to do work when foreman is available.

3. Lack of coordination between scout and foreman - difficulty of determining exact boundaries left for crew work.

4. Insufficient checking of scout work to make sure Ribes areas are not being missed.

5. Lack of definite policy regarding use and expenditure of town funds. The disbursement of town Blister Rust funds is handled by the town officers rather than the state officers. This produces a complicated system, with many loose ends.

6. Town politics occasionally influences selection of foremen not qualified to hold such positions.

7. Lack of sufficient state funds to do eradication work on delinquent owners properties.

8. Foremen insufficiently trained.

V. Miscellaneous.

1. Lack of interest and support in blister rust control work by state forestry department and State Forestry School.

2. Previous weaknesses in state blister rust work during period 1917-1921, reflects on appropriations, personnel, and results obtained in educational and eradication work.

Plans for Developing Work in Maine During 1924.

Personnel.

The federal specialist and supervisor will aid the state leader in every possible way to overcome his lack of leadership qualities. The leader will be encouraged to develop his own ideas and when necessary to lean on the federal men for advice and assistance rather than on the agents. By tactfully helping the leader to develop definite plans for all phases of the work and by aiding in their execution, many of the present difficulties will be overcome. With definite plans and a clear understanding of conditions gained from close field contact, the leader will be able to render decisions and thus keep the full respect of his agents for his ability and judgment. Closer cooperation will be developed between the leader and the extension forces and federal specialists by tactful encouragement, closer contact, frankness, requests for suggestions and certain assistance and by showing definite ways where these men can help the work. The leader and specialist ~~will make a specialist~~ will make a special effort to get better cooperation from the county agent leader and the county agricultural agents in those counties where blister rust agents are located.

Close supervision will be given to Curtis' and Connors' work to broaden out their viewpoints and to make them more effective agents.

Policy and Plans.

Before the field season begins, a definite outline of a state and district plan of work, covering all phases of the control program will be given to the state leader by the Boston or Washington Offices, also a sample write up of the plan for his state. The leader will be asked to revise and complete this plan for the use of these offices and the Maine men. In addition, each agent will be required to submit a definite district plan and calendar of work covering all phases of the control program in his territory. The Maine blister rust policy will be made to include a statement regarding the white pine policy. Such a statement will be written as a suggestion which the leader can submit to the state forestry department for their consideration and approval.

Educational Work.

The federal specialist will make every effort to increase the amount of blister rust publicity in Maine and to get this work better organized. To do this, he will make a careful study of the situation to ascertain the needs and ways to develop this work. Then definite suggestions will be given to the state leader and assistance in carrying out the recommendations. The Boston and Washington offices will supply additional ^{material} for publicity use. Each agent will submit a definite plan for covering this educational phase of the work. The federal specialist will keep in close contact with the extension forces and be the go-between to bring about closer cooperation and full utilization of all the agencies in the educational work. A special effort will be made to get closer cooperation with the county agricultural agents, ^{co. agent leader,} ~~club~~ ^{home demonstration agents} agents, local leaders, granges, womens' clubs, etc. The agents and state leader will keep the extension forces informed as to their plans and progress and ~~seek~~ suggestions for improving the educational part of the control work.

More interview work will be done by the agents and less by the temporary assistants, especially with those people who have Ribes on their lands. Where temporary men are used for such purposes they will be given adequate training, at least a week, before being allowed to do any interview work. The specialists will furnish educational material, such as news items, give talks at meetings, and assist at demonstrations. He will also help lay out at least one blister rust demonstration plot and make one damage study in each district. In addition, a special study will be made to determine the value and use of local leaders in Maine. If feasible, the specialist will urge the appointment of suitable leaders, aid in selecting them, and in helping assign them definite tasks. Not only will all pine owners with Ribes be interviewed, but every effort will be made to reach either in person or by letter, even those owners whose lands are Ribes free, in order that they may also fully appreciate the blister rust situation.

Eradication Work.

More pressure will be brought to bear to get non-resident and delinquent pine owners to clear ~~up~~ their lands of Ribes in order that the eradication work may be completed in definite portions of towns. To create such action, a special state crew will eradicate the Ribes on

several delinquent owners' properties and the cost of the work will be charged to the towns, which in turn will tax the individuals. A definite record and map system will be developed, by the specialist and the state leader, for the field men so they can record the location of non-pine areas eliminated and the location and date tracts were cleared of Ribes, with reference to owners and methods used (crew or scout work.)

A special effort will be made this year to clean up loose ends in those towns where eradication work has already been done. Each agent will submit a list of delinquent owners to the state leader, so that necessary action can be taken.

The town foreman will be abolished, ^{in part} and in his place a combination town scout-foreman will be used. In this way, lost motion will be overcome and lack of coordination between the scout and foreman. When the owners are not ready to do eradication work, the scout-foreman can do Ribes scouting on other lands.

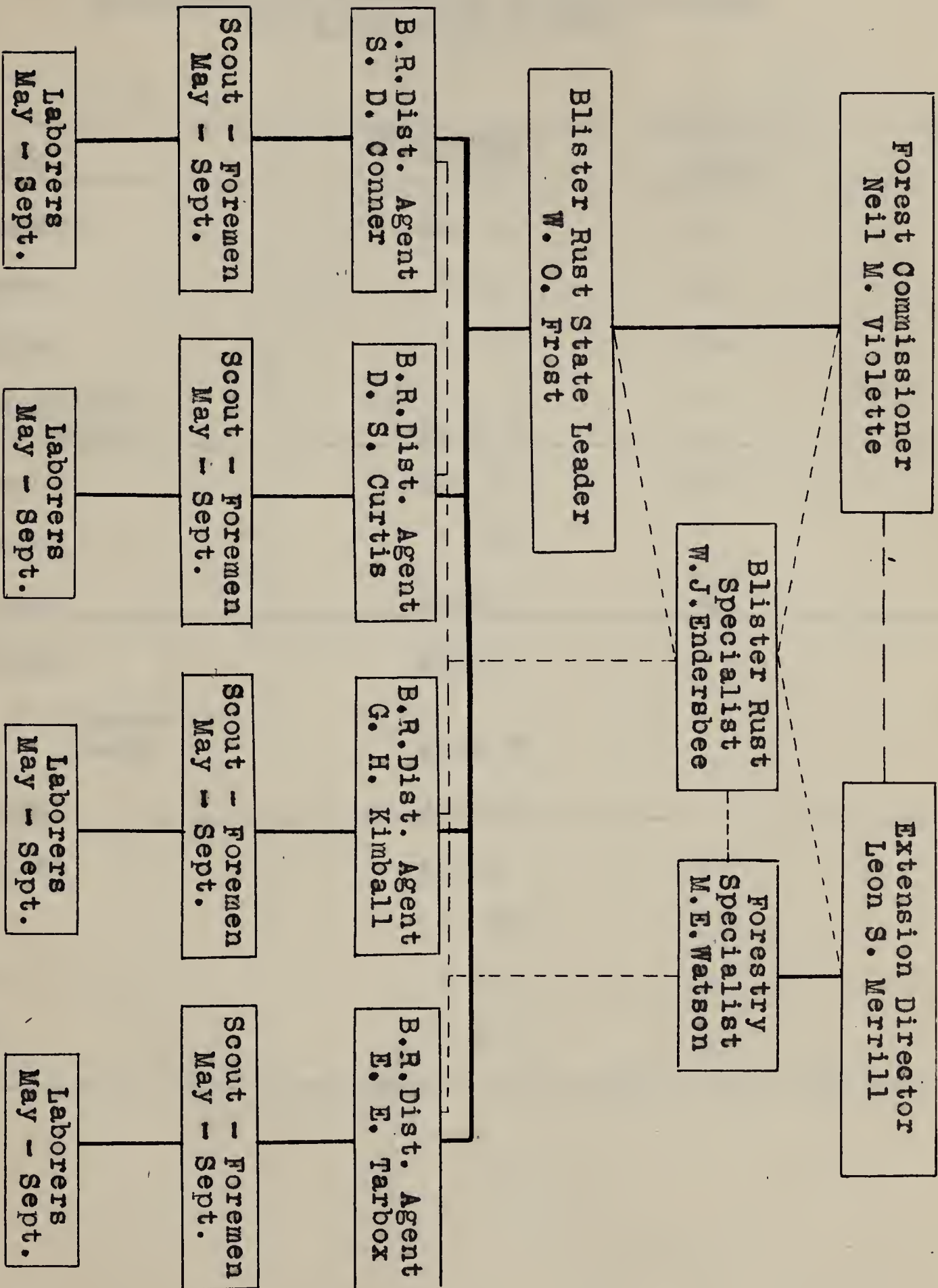
The state will use a firmer policy as regards the disbursement of town funds and will insist on deciding how the town money shall be spent on eradication work. The first consideration will be absolute supervision over the hiring and firing of men, as well as directing the control work. The use of some of the town money for scouting will also help to increase the amount of eradication work performed, and will be used in part to eliminate lost motion of present town foreman and to prevent loose ends. The state will make every effort to get the towns to turn over their blister rust appropriations to the state department to be expended as part of its funds.

It is essential that the scout-foremen be thoroughly trained at the beginning of the season in all phases of their work. Therefore, each agent will thoroughly train all his men for their jobs. The specialists will also aid in this training work. The scout foremen will be made to appreciate they are instructors to pine owners in eradicating Ribes and that they must teach the methods rather than just supervise the work. During 1924 the agents and specialist will do more checking on the areas eliminated by the scouts. A definite checking plan will be developed by the specialist and state leader for this work.

Miscellaneous.

The federal specialist and supervisor and the state leader will make every effort to get the state department of forestry and the school of forestry more interested and active in blister rust control work. This will be done by developing closer contact with the state officials, getting them into the field to see conditions, and by giving them definite statistics and reports on what the disease is doing and the results of the control work. By giving the public the facts of the blister rust situation in a clear and forceful manner and by conducting the field work to the best of our ability, the reflections from the work of previous years will be largely overcome. So little publicity was carried on under the old regime that the public at large knew very little about blister rust or its control prior to the educational work done by the agents now employed.

Blister Rust Control Organization
State of Maine - 1924



Assignment of Temporary Agents in Maine
for Field Season 1924.

Table 11.

District	Name	Date appt. effective	Paid by Govt.	Paid by State
York	Lambert	May 1	-x-	
	Hasty	" 1	-x-	
	Jones	" 5	-x-	
	R.M. Hutch- inson	June 9		x-
And. & Sag.	Jose	May 5	-x-	
	Yeaton	" 16		x-
	Turner	July 1	x	
Cumber- land	Storah	May 5	-x-	
	E. P. Hutch- inson	June 9		x-
	White	June 9		x-
Oxford	Walker	May 5	-x-	
	---	" 16		x
	---	" 5	x	
Extra man (desired)	---	" 5	x	

Assignment of Inventors to Projects in 1945
Los Alamos Laboratory

Project	Name	Office	Date	Govt.	1945
York	Lambert	May 1	-X-		
	Neely	"	-X-		
	Jones	"	-X-		
S. B. Nicholson	S. B. Nicholson	June 2	-		
	Jones	May 2	-X-		
	Neely	"	-X-		
Tanner	Tanner	July 1	-X-		
	Jones	May 2	-X-		
	Neely	"	-X-		
E. P. Hatch	E. P. Hatch	June 2	-		
	White	June 2	-		
	Neely	May 2	-X-		
Hatch	Hatch	"	-X-		
	Neely	"	-X-		
	Jones	"	-X-		

Estimated Federal Blister Rust Control Expenditures in Maine
Fiscal Year 1924 - Period March 1-June 30, 1924.

Federal Funds Available \$6726.08-March 1 - June 30, 1924.

Federal Allotment Fiscal Year 1924..... \$ 17000.

Table #12

ne	District	Period	Rate per Month	Salary	Expenses	Total
ost		Mar. 1-June 30	\$200.00	\$800.00	\$30.08	\$830.08
nnor		" "	145.00	580.00	400.00	980.00
rtis		" "	145.00	580.00	400.00	980.00
mball		" "	145.00	580.00	400.00	980.00
rbox		" "	145.00	580.00	380.00	960.00
olette		Year	-	1.00	-	1.00
mbert	York Co.	May 1 -June 30	100.00	200.00	120.00	320.00
sty	" "	" "	125.00	250.00	-	250.00
nes	" "	" 5 "	125.00	237.50	-	237.50
orah	Cumb. Co.	" "	125.00	237.50	-	237.50
se	Andros.	" "	125.00	237.50	-	237.50
lker	Oxford Co.	" "	125.00	237.50	-	237.50
--	Oxford	" "	125.00	237.50	-	237.50
---	"	" "	125.00	237.50	-	237.50
otals	-	-	-	\$4996.00	\$1525.00	\$6726.08

Estimated Total Available State General Fund for Fiscal Year 1951 - 1952

Fiscal Year 1951 - 1952 - \$17,000,000

State	District	Period	Rate per \$100	Salary	Expenses	Total
Alaska		May 1 - June 30	100.00	100.00	100.00	300.00
Arizona		" "	100.00	100.00	100.00	300.00
Arkansas		" "	100.00	100.00	100.00	300.00
California		" "	100.00	100.00	100.00	300.00
Colorado		" "	100.00	100.00	100.00	300.00
Connecticut		Year	-	1.00	-	1.00
Delaware		May 1 - June 30	100.00	100.00	100.00	300.00
District of Columbia		" "	100.00	100.00	100.00	300.00
Florida		" "	100.00	100.00	100.00	300.00
Georgia		" "	100.00	100.00	100.00	300.00
Idaho		" "	100.00	100.00	100.00	300.00
Illinois		" "	100.00	100.00	100.00	300.00
Indiana		" "	100.00	100.00	100.00	300.00
Iowa		" "	100.00	100.00	100.00	300.00
Kansas		" "	100.00	100.00	100.00	300.00
Kentucky		" "	100.00	100.00	100.00	300.00
Louisiana		" "	100.00	100.00	100.00	300.00
Maine		" "	100.00	100.00	100.00	300.00
Maryland		" "	100.00	100.00	100.00	300.00
Massachusetts		" "	100.00	100.00	100.00	300.00
Michigan		" "	100.00	100.00	100.00	300.00
Minnesota		" "	100.00	100.00	100.00	300.00
Mississippi		" "	100.00	100.00	100.00	300.00
Missouri		" "	100.00	100.00	100.00	300.00
Montana		" "	100.00	100.00	100.00	300.00
Nebraska		" "	100.00	100.00	100.00	300.00
Nevada		" "	100.00	100.00	100.00	300.00
New Hampshire		" "	100.00	100.00	100.00	300.00
New Jersey		" "	100.00	100.00	100.00	300.00
New Mexico		" "	100.00	100.00	100.00	300.00
New York		" "	100.00	100.00	100.00	300.00
North Carolina		" "	100.00	100.00	100.00	300.00
North Dakota		" "	100.00	100.00	100.00	300.00
Ohio		" "	100.00	100.00	100.00	300.00
Oklahoma		" "	100.00	100.00	100.00	300.00
Oregon		" "	100.00	100.00	100.00	300.00
Pennsylvania		" "	100.00	100.00	100.00	300.00
Rhode Island		" "	100.00	100.00	100.00	300.00
South Carolina		" "	100.00	100.00	100.00	300.00
South Dakota		" "	100.00	100.00	100.00	300.00
Tennessee		" "	100.00	100.00	100.00	300.00
Texas		" "	100.00	100.00	100.00	300.00
Utah		" "	100.00	100.00	100.00	300.00
Vermont		" "	100.00	100.00	100.00	300.00
Virginia		" "	100.00	100.00	100.00	300.00
Washington		" "	100.00	100.00	100.00	300.00
West Virginia		" "	100.00	100.00	100.00	300.00
Wisconsin		" "	100.00	100.00	100.00	300.00
Wyoming		" "	100.00	100.00	100.00	300.00

State Expenditures - Blister Rust Control-
Fiscal Year 1924 - Period March 1-June 30.

State Money Available March 1 - June 30 - \$1300.

Table 13

Name	District	Period	Rate	Salary	Expenses	Total
lasty	York	May 1-June 30	--	--	\$50.00	\$50.00
ones	"	" 16- " 30	--	--	37.50	37.50
.M.Hutch- inson	"	June 9-June 30	\$125.	\$91.67	-	91.67
eaton	And. & Sag.	May 16 - " 30	125.	191.67		191.67
.P.Hutch- inson	Cumberland	June 9 - " 30	125.	91.67		91.67
. White	"	" 9 - " 30	125.	91.67		91.67
--		May 16- " 30	125.	191.67		191.67
Cost expenses and Miscellaneous					554.15	\$745.85 554.15
Totals				\$658.35	\$641.65	\$1300.00

State Blister Rust Control Expenditures in Maine
Fiscal Year 1925 -(July 1, 1924 - June 30, 1925)

Appropriation \$5000.

Table # 14

Name	District	Period	Rate	Salary	Expenses	Total
Post		1924 1925 July 1-June 30	-	-	1000.	1000.
Box		1925 April 1- " 30	-	-	300.	300.
nnor		" "	-	-	300.	300.
mball		" "	-	-	300.	300.
rtis		" "	-	-	300.	300.
M. Hutch- inson	York Co.	1924 1924 July 1-Sept. 30	125.	375.	-	375.
aton	And. & Sag. Co.	" "	125.	375.	-	375.
. Hutch- inson	Cumb. Co.	" "	125.	375.	-	375.
ite	" "	" "	125.	375.	-	375.
mp. outs		May & June 1925	-	700.	-	700.
?		1924 1924 July 1-Sept. 30	125.	375.	-	375.
sc. penses					225.	225.
tals				\$ 2575.	\$ 2425.	\$ 5000.

Estimated Federal Blister Rust Control Expenditures
in Maine - Fiscal Year 1925 (Allotment \$18000)

Table 15

Name	District	Period		Rate per mo.	Total Salary	Total Exp.	Grand Total
Post		1924 July 1 -	1925 June 30	\$ 208	\$ 2500.	\$ 150.	\$ 2650.
Tarbox	"	"	"	155.	1860.	* 820.	2680.
Connor	"	"	"	155.	1860.	* 820.	2680.
Kinball	"	"	"	155.	1860.	* 820.	2680.
Curtis	"	"	"	155.	1860.	* 820.	2680.
Bolette	"	"	"	-	1.	-	1.
Amber	York Co.	"	1924 Sept. 30	100.	300.	180.	480.
Sty	" "	"	"	125.	375.	-	375.
Oran	Cumb. "	"	"	125.	375.	-	375.
Se	Andros. "	"	"	125.	375.	-	375.
Walker	Oxford Co.	"	"	125.	375.	-	375.
Nes	York Co.	"	"	125.	375.	-	375.
-	"	"	"	125.	375.	-	375.
-	"	"	"	125.	375.	-	375.
-	"	"	"	125.	375.	-	375.
Totals					\$13241.	\$3610.	\$16851.

Balance available to employ temporary agent
during May and June 1925.

1149.

\$18000.

* Expenses Tarbox, Connor, Kinball and Curtis paid from
state funds April 1 - June 30, 1924.

Estimated Federal Reserve Bank of New York
to June 30, 1934
(All figures in millions of dollars)

Item	1934 July 1 - June 30	1933 July 1 - June 30	1932 July 1 - June 30	1931 July 1 - June 30	1930 July 1 - June 30
Assets	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Liabilities	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Capital	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Reserves	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Other	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Income	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Expenses	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Profit	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Loss	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Net	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1
Total	1,254.1	1,254.1	1,254.1	1,254.1	1,254.1

Balance available to employ temporary agents
 during May and June 1934.

* Expenses for rent, janitor, janitor, janitor and janitor from
 estate funds April 1 - June 30, 1934.

New HampshireStatus of Work in New Hampshire

New Hampshire has $2\frac{1}{2}$ million acres of white pine growth, according to an estimate by the state forestry department, which has made a rough survey of the forest resources in the state. The data was obtained by interviewing selectmen, assessors, pine owners, etc., and checking the information by a general scouting of the towns. There are 234 towns in the state with pine worth protecting.

During the period 1917 to 1922 inclusive, a total of 774,609 acres were cleared of Ribes. In 1923, an additional 268,237 acres were worked, or a grand total for all years of 1,042,846 acres. Allowing $\frac{1}{3}$ of this acreage for protection strips not more than 688,278 acres of pine have been covered. Therefore, there remains 1,381,722 acres of pine in need of protection or a total area of 2,717,583 acres that must be covered. To work this area in the remaining six years of the control program, 452,930 acres must be cleared of Ribes each year or an equivalent of 1.68 times the amount eradicated in 1923. The $\frac{1}{3}$ area allowed for protection strips may be too much for New Hampshire conditions. There is also a possibility that the $2\frac{1}{2}$ million estimate is too high. However, necessary re-eradication work needed on many of the early control areas will offset any overestimating of the amount of pine land. To complete the initial eradication of Ribes in the pine areas, it will be necessary to cover 45,293 acres in each of the ten districts during each year of the remaining six years of the control program. The results of the control work accomplished in New Hampshire are summarized in the two following tables.

Summary of Ribes Eradication Work in
New Hampshire - 1917 - 1923

Table 16

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	23,091	500	462,500	\$9698.22	.42	20.02
1918	66,292	8,427	959,315	26,013.89	.39	14.47
1919	163,413	21,171	1,659,936	32,988.35	.20	10.15
1920	204,093	22,206	2,061,996	35,864.48	.175	10.10
1921	137,827	9,713	1,654,443	21,873.07	.159	12.00
1922	179,893	9,061	1,816,829	28,706.64	.157	10.0
1923	268,237	24,779	3,496,733	51,651.48	.192	13.3
Totals	1,042,846	95,857	12,111,752	\$206,796.13	.198	11.6

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1649

By JOHN BURNET, BISHOP OF SALTHERS.

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Summary of Individual and Town Cooperation
in Blister Rust Control Work in New Hampshire
Period 1917 - 1923

File 17

Year	No. Individ. Coon.	% of Total	Amt. paid by Individ. Coop.	% of Total	No. Towns Approp.	% of Total	No. Towns Worked	Amt. Approp. by Towns	% of Total
1917	5	1.1	42.86	.2	-	-	4	-	-
1918	8	1.9	810.95	3.1	43	14.7	30	7,200.00	9.7
1919	34	7.8	2,053.65	7.9	38	13.0	50	6,510.00	8.4
1920	97	22.2	4,764.37	18.3	50	17.1	48	8,000.00	10.7
1921	23	5.5	2,688.51	10.4	31	10.6	33	4,350.00	5.8
1922	148	33.9	8,004.82	30.8	49	16.8	49	16,900.00	22.7
1923	121	27.7	7,635.45	29.3	81	21.8	81	31,915.00	42.7
Totals	436	100.0	26,000.61	100.0	292	100.0	295	74,675.00	100.0

* Wild Ribes eradication only.

The Ribes factor in New Hampshire is a variable one. In the southern half of the state the wild bushes are small in size, comparatively few in number, and located more or less in definite sites such as along stream courses, in swamps, along rocky hillsides, fence rows, etc. However, even in the southern portion, many places are found where the bushes are exceptionally numerous, such as skunk currants in swamps, and gooseberry bushes on the rocky hillsides. Due to these conditions preliminary scouting is practical and large areas can be eliminated as Ribes free at a very low cost. In the Northern section of the state within the white pine belt, the Ribes are larger in size and abundant in number, also their distribution is more or less general. Consequently, new methods must be used over the greater part of the areas, although even in this section careful Ribes scouting can be effectively used in eliminating small non-Ribes areas.

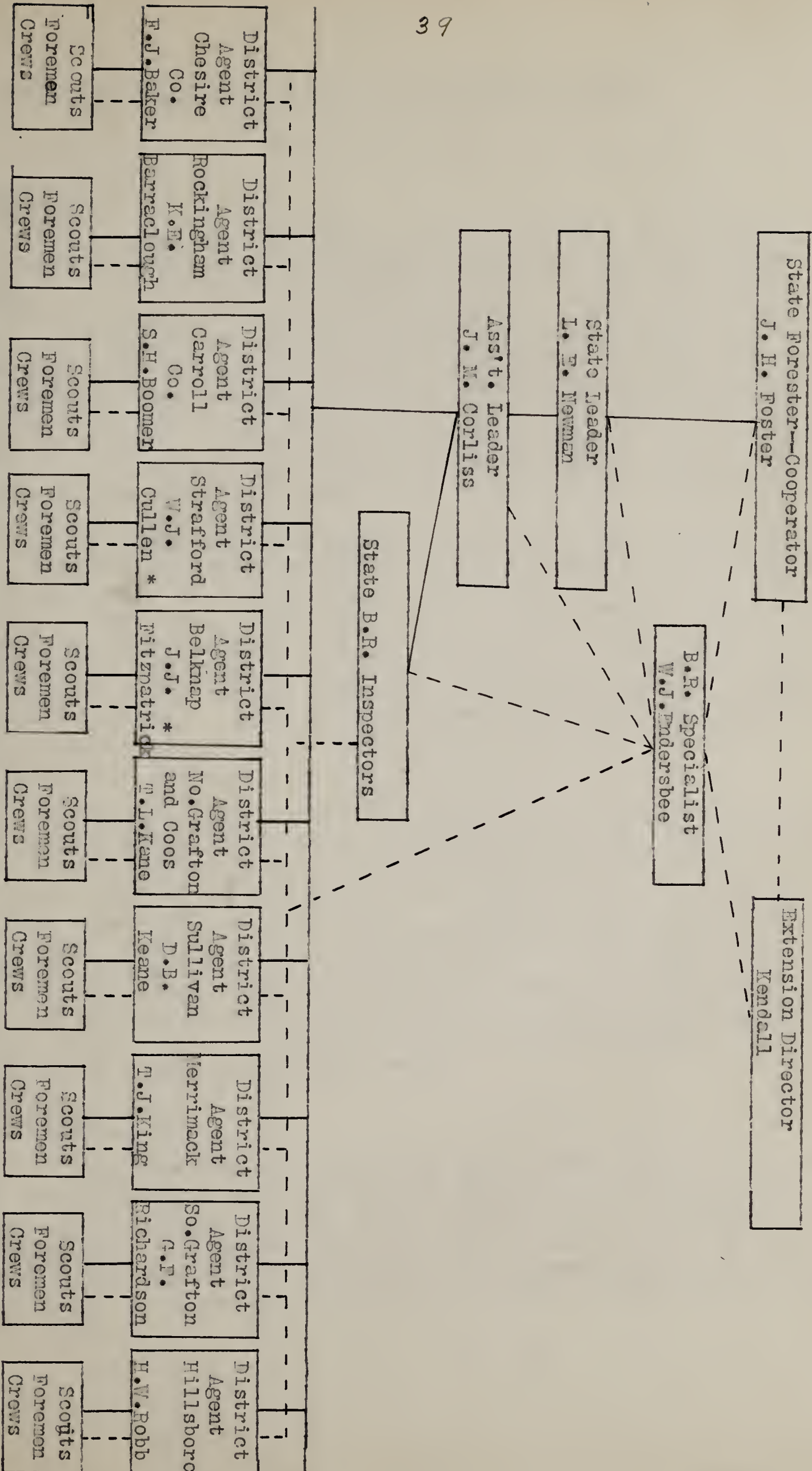
Blister rust infection on pine has been found in practically every town in the state where there is white pine. The amount of infection varies considerably due to the great variation in the amount of wild Ribes. In the southern portion of the state the majority of the most striking infections have been caused by cultivated Ribes, especially Ribes Nigrum, however many spot infection areas, caused by wild Ribes, varying from a few trees to several acres can be located here and there throughout this section. In the northern districts

infection is much more severe and generally distributed, averaging from 10% to 100% in the various stands. A 15 mile strip survey (one rod wide) run in 1922 from Lisbon to Bath, New Hampshire, showed 13.8% of the 3758 trees diseased. During 1923, ten one ~~acre~~ pine plots were studied for blister rust damage. At least one acre plot was laid out in each of eight agents' districts. The infections in these plots ranged from 21% to 72%, with the percentage of dead trees running up to 16%. Several new areas of recent pine infection were found during the year.

Ribes eradication is conducted in those towns which appropriate funds for control work, the state paying 20% of the costs. In addition cooperation on the same basis is solicited from individual pine owners, both in towns which appropriated and in those that did not. In all cases the cooperative funds are turned-over to the state in advance. Any balance, of course, being refunded to the cooperators. The town control areas are chosen by the selectmen and the blister rust agents, care being used to work just areas most in need of protection. Each year a definite part of the town is worked until the entire pine area is covered. In this way, control work has been completed in fifteen towns. In all cases the eradication work is done by state crews supervised by state foremen. A scout is employed in each town to eliminate non-Ribes areas ahead of the crew work. The efficiency of eradication is maintained at a high standard by daily crew checks, agents checks, and special checks by one or two state inspectors.

New Hampshire Blister Rust Control Organization

The blister rust organization in New Hampshire since 1922 has consisted of ten permanent district agents working under the direction of the state leader who is directly responsible to the state forest commissioner who has the regulatory authority of the state forestry department with whom the Bureau of Plant Industry cooperates. The Bureau and the state forestry department **also** cooperate in the educational phases of the blister rust control work with the state extension service thru its state director. Each agent has been assigned to a definite district and is responsible for all blister rust educational and eradication work in his territory. Practically all of the agents are headquartered at the offices of the County Agricultural Agents. During the field season each agent supervises the work of several state crews, foremen and scouts. The state checkers work under the immediate direction of the state leader. The following chart shows the organization in detail.



*In 1924, Strafford and Belknap Counties will be combined into one district and the work in this territory supervised by Cullen.

Results Accomplished in Control Work During 1923

New Hampshire

Eradication

During the year 1923, 121 persons in the ten agent's districts cooperated in wild Ribes eradication work in New Hampshire. A total of 28,866 acres were cleared of 709,374 bushes at a per acre cost of 33 cents. In this cooperative work the individuals paid \$7635.45, the town \$10.48, and the state \$1918.37, or a total expenditure for individual cooperative control work of \$9,564.30. The acreage eradicated of Ribes by cooperators ranges by districts from 394 acres in Hillsboro county to 6120 acres in Belnap, while the cost per acre varies from 22¢ in Belnap county to 60¢ in upper Grafton. No cooperative work was carried on without state supervision.

In addition the agents supervised the eradication work in 81 cooperating towns. In this town work, 2,787,359 wild Ribes were destroyed on 239,371 acres at a total cost of \$41,554.79, or 17 cents per acre. The amount of acreage eradicated in cooperation with towns varied from 3,808 acres in upper Grafton County to 71,016 acres in Merrimack County. The cost per acre ranged from 11¢ in Cheshire County to 32¢ in upper Grafton. Also in this town work 20,718 cultivated bushes were destroyed, but only \$37.20 was paid for Ribes compensation.

During 1923, there was \$33,514.81 town money available, \$1249.81 of which was re-appropriated from 1922 funds. A total of \$32,736.27 town funds was used during 1923, while the state expended \$8818.52 on town work, or 21.2% of the total amount spent on town work. A grand total of 268,237 acres were cleared by town and individual cooperation of 3,496,733 Ribes at a cost of \$51,117.12, or 19¢ per acre. An additional \$459.98 state money was expended for equipment. In addition 630 acres were re-eradicated in these districts at a cost of \$72.39. A total of 352 men were employed on the eradication work during the season.

Educational Work

In New Hampshire during 1923, ten permanent agents held 312 meetings, attended by 15,687 persons in 175 towns, placed 222 exhibits in 169 towns, distributed 15,454 publications in 192 towns, published 370 news items reaching 393 towns and placed 2,533 posters or signs in 196 towns. The intensive educational work resulted in 3706 initial interviews and 1444

follow up calls, and promised cooperation as follows: 355 wild Ribes eradication, 181 cultivated Ribes eradication, and 3,241 moral support only. Individual demonstrations of the disease were given to 945 persons and 187 group demonstrations were attended by 2018 persons. Eradication methods were demonstrated to 176 individuals and 45 group demonstrations of such methods reached 418 people.

Blister Rust Control Expenditures in New Hampshire.

In 1923, a total of \$90,072.28 was expended on blister rust control work in New Hampshire, the individuals paying \$7635.45, the state \$16,512.88, the towns \$32,742.13, and the Government \$33,181.22. This \$90,072.28 was spent by projects in the following proportion: eradication 57.3%; education 32.7%; supervision and office administration 7.8%; inspection and field data 2.1%; miscellaneous .2%; and Ribes compensation .04%. A total of \$51,651.48 was expended on the project Ribes eradication, the individuals paying \$7635.45 or 14.7%, the state \$11,273.90 or 21.8%, and the town \$32,742.13 or 53.3%. In other words, the towns and individuals paid 358% more than the state in eradicating Ribes. Basing the cost per acre on the total amount of money expended for all projects by all cooperators gives a cost of 33.5 cents per acre, or an increase of 76.3% over the eradication cost of 19 cents per acre. The balance of funds available for the period January 1st to June 30, 1924 is as follows: state appropriation \$1350.37, town funds \$772.68 and federal funds \$15040.88. For the fiscal year 1925 Newman estimates \$17,000, state appropriation, \$35,000 town funds and \$8000 individual money. The town subscriptions will be available the latter part of March.

Commendations - New Hampshire.

New Hampshire has always been one of the most progressive states in blister rust control, and has alone worked 38% of the total acreage covered in the Northeastern and Lake states during the period 1917-1923. Exceptional progress has been made during the first two years of the new control program. The table below gives a comparison of results accomplished before and after the new policy went into effect.

Comparison of Results in Cooperative Blister Rust Control Work in New Hampshire Between Periods 1917-1921 and 1922 & 1923.

Table 18

Period	Total Acreage	Total Ribes Wild	Cult.	Total Cost	Cost per acre	No. Coop. Towns	Am't town Money prop.	No. Indiv. Coop.	Am't. pd. by Indiv. Coop.
1917-1921	594710	6798190	62017	\$126438.01	2.213	162	25860.00	167	10360.34
1922-1923	448130	5313562	33840	80358.12	.179	130	48815.00	269	15640.27
Total	1042846	12111752	95857	206796.13	.198	292	74675.00	436	\$26000.61
1922-1923 total	42.9	43.9	35.3	38.8		44.8	65.3	61.7	60.2

This summary shows that almost half of the total amount of eradication work was accomplished during 1922 and 1923, also that over sixty percent of the total amount of town and individual cooperation was obtained during these two years.

New Hampshire has an exceptionally good organization and personnel. During 1923, the agents in New Hampshire lead all the other states in the amount and variety of general publicity work. This state was one of the first to employ state checkers. Very close cooperation has been obtained with the extension service and local forestry leaders have been appointed in the majority of towns.

The next table shows the increases in the amount of control work performed in 1923 over 1922.

Comparison of Results in Cooperative Blister Rust Control Work
in New Hampshire Between 1922 and 1923.

Table 19

Year	Total Acreage	Total Ribes		Total cost	Cost per acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. paid by Individual Coop.
		Wild	Cult.						
1922	179893	1816829	9061	28706.64	.159	49	16900.00	148	\$8004.82
1923	268237	3496733	24779	51651.48	.192	81	31915.00	121	7635.45
% increase or decrease	+49.1%	+92.4%	+173.4%	+79.9%	+20.7	+65.3%	+89.4%	-18.9%	-4.6%

The following analysis of New Hampshire's weaknesses and remedies was made by E. C. Filler and W. J. Endersbee.

Weaknesses in Control Work in New Hampshire.

I. Personnel -

(1) State Leader

Feels importance of executive position but does not command full respect of his agents for their leader, because he fails to inspire, is not sufficiently well acquainted with their problems, hesitates to make decisions, and even avoids the decisions entirely, is slow in responding to their requests for assistance and in sending them needed material. As a result, the agents keep away from him as much as possible, and either work out their own problems independently or ask the advice of Corliss. As a whole he fails to plan, organize and develop his work; has been pushed into practically everything which has been accomplished, showing an apparent unwillingness to act on advice or suggestions or to get out of the trodden path. Fails to distribute his work properly, tries to attend to too many details personally, and does not distribute the burden of the work on his agents. For instance, he made out the agents' annual reports and town reports instead of having the men do this who are directly responsible for the district work. Does not in any way direct the work of his assistant leader. Is always the last man to submit any records or reports.

On the other hand, the state leader is most conscientious, reliable, a good forester, has a pleasing personality, good understanding of local conditions and has ability to organize and plan the work effectively. Due to illness and a tendency to putter with non-essentials and forget essentials he has fallen into more or less of a rut.

(2) The assistant state leader has too many outside irons in the fire and gives too superficial supervision to the field work. He is inclined to get too deep into politics and has shown a tendency toward partiality in the selection of men. Being employed on a W. A. E. basis and receiving no supervision his efforts have largely been of the hit or miss type. He has unusual ability as a leader, is a plugger who gets results, but needs close supervision due to his lack of education and administrative ability.

(3) The agents as a whole are a capable body of men. There is a tendency toward too much politics in their work, also the details of the state organization are aired too much before and by the agents. A general laxity exists in submitting reports promptly, also in planning travel. Too much hit or miss

jumping around without accomplishing definite results. Due to Fitzpatrick going on leave because of poor health, there is no qualified agent in Belnap County. A poorly qualified temporary agent has been doing scouting and some general educational work in this district since Fitzpatrick left.

II Inadequate Cooperation with Bureau of Plant Industry and Extension Forces.

1. Policy of taking action and notifying later.
2. Apparent unwillingness to act on advice or suggestions of others.
3. Tendency to oppose extension forces and to cooperate only so far as they ^{Forestry Dept} dictate.

III Policies and Plans.

1. No definite state blister rust control or pine policy.
2. No state or district plans of work embracing all phases of the control program.
3. Regardless of the project, there is always inadequate planning in advance to make sure the desired results are to be obtained.

IV Education.

1. Lack of contact with and instruction to the individual pine owner.
2. Lack of well organized publicity.
3. Failure to utilize all agencies for educational work.
4. Unwillingness of Forestry Department to supply sufficient and proper educational material.
5. Lack of funds for purchasing adequate educational material.
6. Inadequate supervision ^{by} leaders.

V Eradication

1. Lack of adequate checking.
2. Need for proper training of foremen and scouts on a large scale.
3. Lack of supervisory assistance in some districts during eradication season. (King had twelve crews at one time last season).
4. Lack of maps showing control areas and pine land.
5. Inadequate supervision of agents during eradication season.

Plans for Overcoming Weaknesses in New Hampshire.

I Personnel.

(1) The federal specialist and supervisor will make every effort to aid the state leader in developing his work. By aiding him make definite plans in advance the work can be better organized and developed, and he will be in a better position to render decisions. The leader will also spend more time in the field to become fully acquainted with the agents' problems, will give more thought and time to directing the essential work and less to details which will be assigned to the clerks and agents, and will distribute this work and insist on the agents keeping up their part in a way that correlates with ~~the~~ central office.

(2) The work of the assistant leader will be definitely planned in advance by the state leader with the help of the specialist, and the state leader will give adequate supervision to the assistant leaders work, which will cover definite periods, so as to avoid hit and miss work and too superficial supervision.

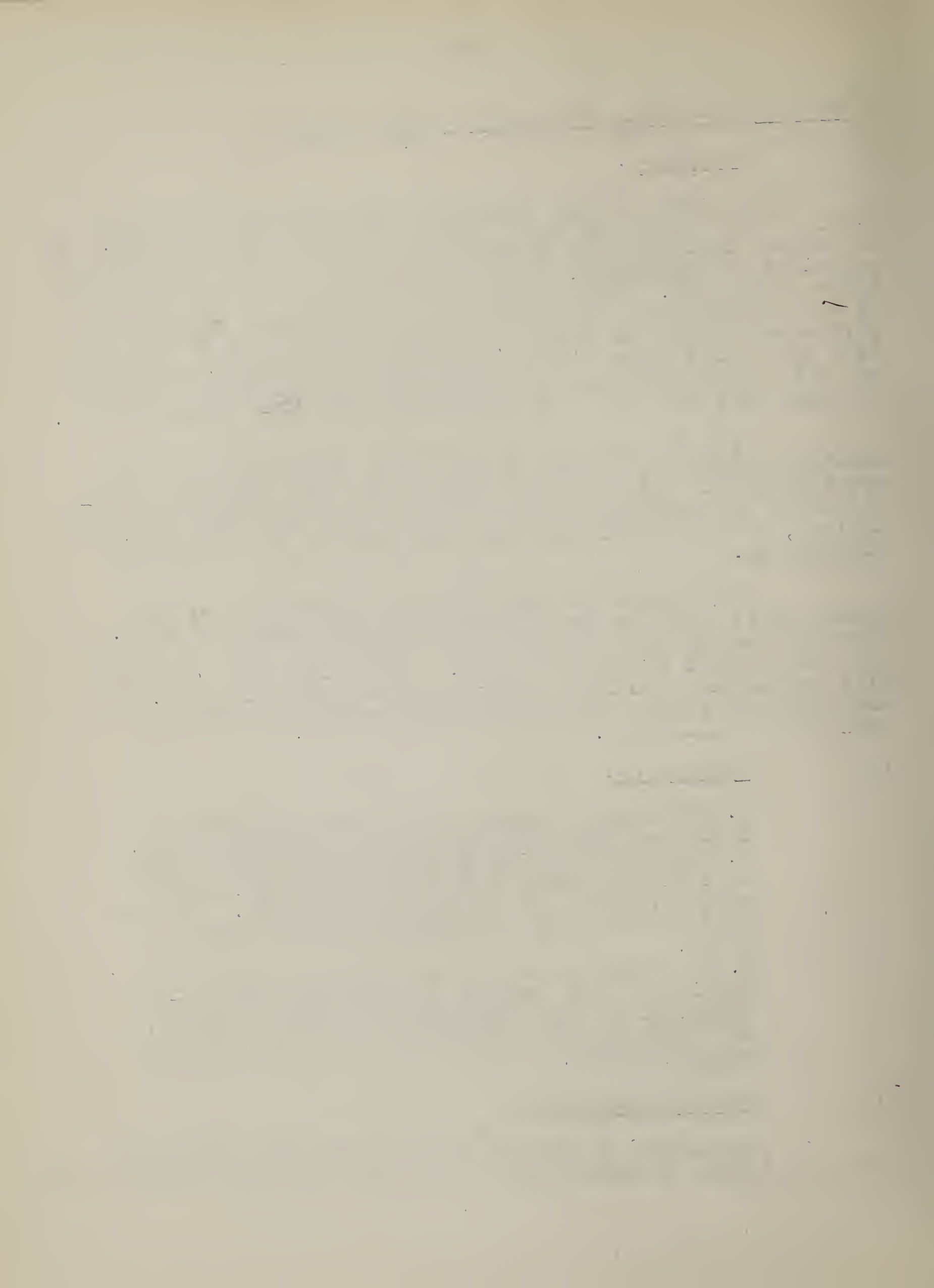
(3) Closer and more adequate supervision by the leaders will overcome the weaknesses in the agent personnel. Strafford and Belnap Counties will be combined into one district and Agent Cullen placed in charge. Even then this district will be smaller than many of the other agents' territories. Even the extension forces are contemplating combining these two counties in their work.

II Cooperation

1. The federal leaders will insist on notice from the state officials before action is taken.
2. Every effort will be made by the federal men to tactfully offer definite suggestions, the value of which can be recognized by all. Efforts will also be made to broaden the state view point.
3. By acting as an effective liaison officer the specialist will develop the best possible co-operation between the Bureau of Plant Industry, the State Forestry Department, and the State Extension forces.

III Policies and Plans

The Office of Blister Rust Control will submit to the state leader an outline for a state and district blister rust



policy and plan of work embracing all phases of the control program, also a sample write up covering this outline. The leader will be asked to revise this for his state and to send copies to the federal offices by a certain date. The federal specialist will see that adequate planning is done in advance of starting any new projects, and will submit suggestions to the leader. The specialist will also develop an office plan for use of the leader in order to distribute the work more evenly and to relieve the leader of as many details as possible.

IV Education

1. Effective contact will be developed with pine owners by more personal interviews and demonstrations. Greater stress will be made to get owners to view the crews at work. A greater amount of general educational work also will result in the owners becoming better acquainted with conditions and control measures.

2. The general educational or publicity work will be better organized by definite plans made at the central office. The specialist and leaders will make a study to determine what agencies are available, how others can be created, and how they can be used. A definite system covering exhibits, demonstrations, news items, etc., will be developed and the agents instructed to give ample time to this work.

3. Every agency will be utilized in each district for carrying on the educational work, greater use of local leaders, granges, press, men and womens clubs, etc.

4. Better supervision and direction will be given by the state leaders.

5. Closer study of agents' needs will be made by the specialist and assistance given to the agents in developing their work.

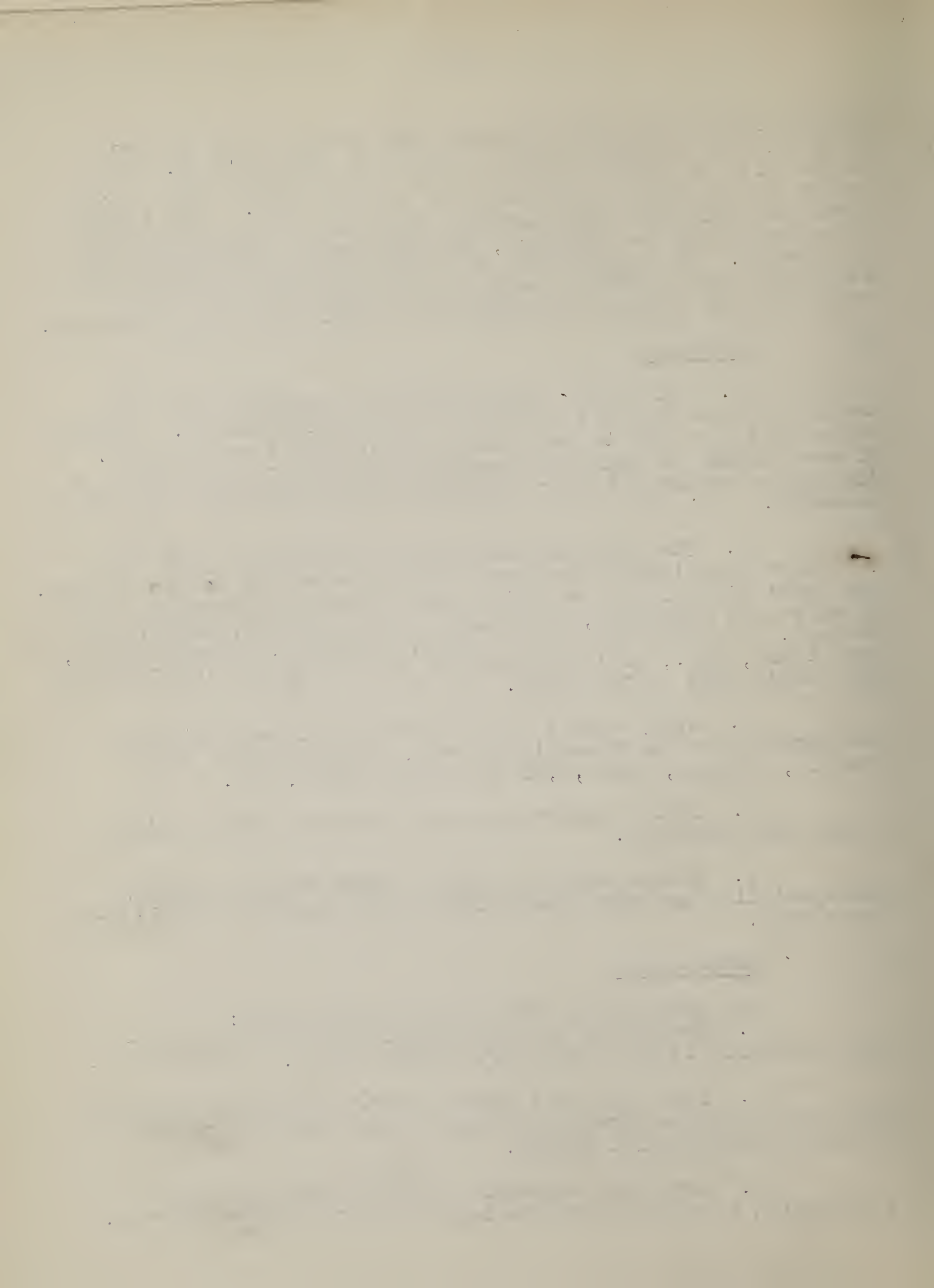
V Eradication

The eradication work will be improved by:

1. Having one or more schools for training foremen and scouts in the early part of the season.

2. Insisting that agents do more effective checking and that two state checkers be used in the field throughout the entire eradication season.

3. Supply an assistant to help supervise Ribes eradication in those districts having a large volume of work.



This assistant could do checking, hire help, make arrangements for boarding places, etc., thus relieving the agent for other work that only he should do.

4. Each agent will be required to keep accurate records, and maps showing locations of pine lands and areas protected each year. The specialist will aid in developing a definite system for this work.

5. The state leaders will spend more time in the field in order to get better acquainted with conditions so as to be of greater help to the agents and in developing the work in general.

VI General

The Office of Blister Rust Control will insist that all records and reports be submitted promptly.

Table 20. Statement of Blister Rust Control Funds in New Hampshire.

Source of Funds	Jan. 1, 1924-June 30, 1924 Amount	July 1, 1924-June 30, 1925 Amount
State appropriation	1350.37	\$17,000.
Nursery funds	---	----
Local appropriation	772.68	35,000. est.
Other local coop. funds	500.00 est.	8,000. est.
Total State coop. funds	2623.05	60,000.
Federal funds allotted	-Balance 16040.38	33,000.

Total Federal allotment Fiscal year 1924-25 \$34,000, an additional \$500. needed to cover estimated ^{Federal} expenditures.

Estimate of Federal Expenditures in New Hampshire
January 1--June 30, 1924.

Table 21

Name	District	Period	Rate per Month	Total Salary	Total Expenses	Grand Total
Newman	State	Jan.1-June 30, 1924	\$183.34	\$1100.	\$170.	\$1270.
Corliss	"	"	\$7. per Day WAE.	(est.) 900.	State	900.
Baker	Cheshire	"	145.	870.	600.	1470.
Barra- clough	Rockingham	"	145.	870.	600.	1470.
Boomer	Carroll	"	140.	840.	600.	1440.
Cullen	Strafford	"	150.	900.	600.	1500.
Fitz- patrick	Belknap	Jan.1-- Feb.28.	145.	290.	100.	390.
Kane	Northern Grafton	Jan.1-June 30, 1924	135.	810.	600.	1410.
King	Merrimack	"	170.	1020.	600.	1620.
Keane	Sullivan	"	140.	840.	600.	1440.
Richard- son	Lower Grafton	"	120.	720.	600.	1320.
Robb	Hillsboro	"	145.	870.	600.	1470.
I.B.White	Clerk	"	15.	90.	-	90.
E.J.White	Belknap	Jan.1-- April 30.	105.	420.	300.	720.
TOTALS	-	-	-	\$10,540.	\$5,970.	\$16,510.

An additional federal allotment of \$1470 will be needed if the Government continues to pay the salaries and expenses of these men during the entire period as indicated.

able

422 Estimate of Federal Expenditures in New Hampshire -July 1, 1924-June 30, 1925.

Name	District	Period	Rate per Month	Total Salary	Total Expenses	Grand Total	Salary raises July 1, 1924
Newman	State	July 1, 1924 to June 30, 1925	\$ 208.33	\$ 2500.	\$ 400.	\$ 2900.	Incr. per year \$ 300.00
Orliss	"	"	7. per day WAF	2100.	State	2100.	
Barra- lough	Rocking- ham	"	155.00	1860.	1200.	3060.	120.00
Pomer	Carroll	"	150.00	1800.	1200.	3000.	120.00
Allen	Strafford	"	160.00	1920.	1200.	3120.	120.00
ane	Belnap	"	160.00	1920.	1200.	3120.	120.00
	Northern Grafton	"	145.00	1740.	1200.	2940.	120.00
ing	Merrimack	"	180.00	2160.	1200.	3360.	120.00
chard- son	Lower Grafton	"	130.00	1560.	1200.	2760.	120.00
obb	Hills- boro	"	145.00	1740.	1200.	2940.	
Keane	Sullivan	"	140.00	1680.	1200.	2880.	
aker	Cheshire	"	150.00	1860.	1200.	3060.	180.00
.B. White	Clerk		15.00	180.	---	180.	
Total				\$ 21100.	\$ 11200.	\$ 32300.	
isc.						700.	
rand						\$	
otal						33000.	

(This estimate made on basis of nine district agents instead of ten)

Results obtained by Robb and Keane do not warrant salary increases at this time

VermontStatus of Work.

Vermont has 86,000 acres of white pine, most of which has been roughly type mapped. During the period 1917-1922 inclusive, a total of 37,490 acres had been covered for Ribes, however at least 4000 acres of this amount was re-eradication work on the Thetford and Sharon areas. In 1923, an additional 25,190 acres were cleared of Ribes, but again 1240 acres was re-eradication work. Therefore, to date not more than 57,440 acres have been eradicated of Ribes. Figuring that 33 1/3% of this acreage is made up of protection strips, not more than 37,910 acres of pine have been covered. This leaves 48,090 acres of pine in need of protection or a total acreage which must be covered of 72,135 acres. To work this area in two years, 36,067 acres must be cleared of Ribes each year, or an equivalent of 1.43 times the amount worked in 1923. In addition there are numerous small pine wood lots scattered more or less throughout the state. It will take at least an additional year or two to protect these scattered stands. The entire control project in Vermont can, therefore be completed within four more years, not considering any future re-eradication work. The results of the control program in Vermont are summarized in the following two tables.

Table 23

Summary of Cooperative Ribes Eradication Work
in Vermont - Period 1917-1923.

Year	Acres	No. Ribes Cult. Wild		Total Cost	Per Acre Values	
					Cost	Ribes
1917	6,000	-	44,678	\$7109.32	1.18	7.44
1918	4,698	77	78,563	5182.64	1.10	16.80
1919	2,460	-	96,749	2214.26	.90	39.32
1920	4,501	74	36,294	3391.60	.75	8.06
1921	6,319	131	60,537	3464.01	.548	9.58
1922	13,512	812	201,906	6150.24	.455	15.0
1923	25,190	1234	278,570	8498.43	.337	11.0
Totals	62,680	2328	797,297	\$36010.50	.574	12.7

Summary of Individual Blister Rust Control Work in Vermont
Table # 24 Period 1917-1923.

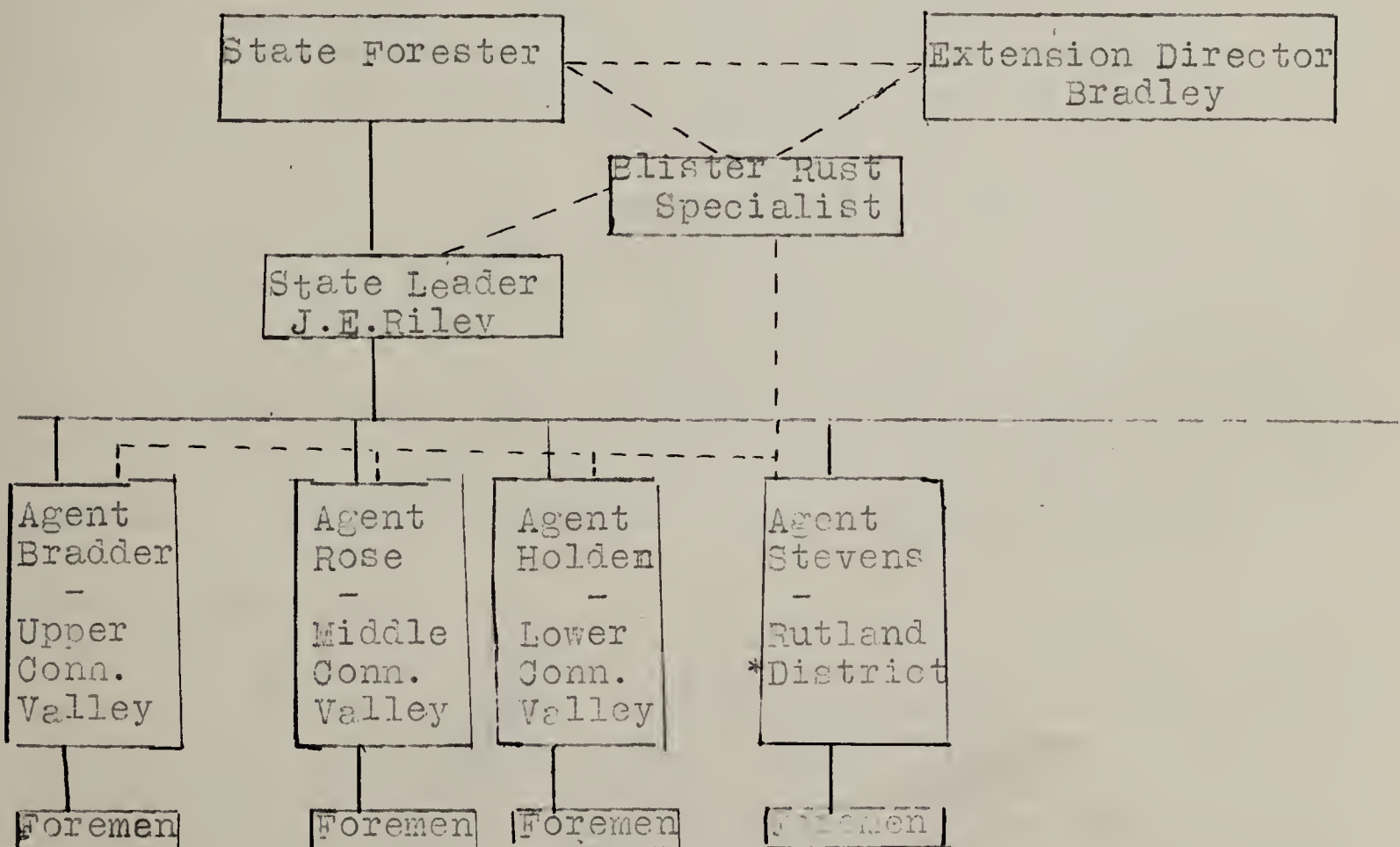
Year	No. Individual Cooperators	% of Total	Amt. Subscribed by Individuals	% of Total
1917	-	-	-	-
1918	-	-	-	-
1919	1	.2	270.00	1.6
1920	29	7.1	515.61	3.1
1921	31	7.6	3,235.50	19.3
1922	125	30.8	5,502.22	32.8
1923	220	54.2	7,247.34	43.2
Totals	406	100.0	16,770.67	100.0

The bulk of the pine in Vermont is located in the lower Champlain Valley and on a narrow strip about three to five miles wide along the Connecticut River. According to Riley, pine infection is very heavy in eastern Vermont along the Connecticut River, and to a less extent in the river valleys crossing the state and in the middle western section, but in the southwestern and northwestern parts of the state pine infection is very light due to scarcity of pine and Ribes. Along the Connecticut Valley the Ribes are especially abundant and large in size, consequently the pine damage is severe. Due to the abundance of Ribes, crew work is necessary in most areas, consequently any scouting needed can be done by the agents or foremen. The eradication work in Vermont has been conducted entirely since 1921 on the basis of cooperation with individuals, the state furnishing trained foremen and paying excess labor costs over a certain figure per hour for both time of foremen and laborers, while the individuals assumed all the other costs. However, in the latter part of 1923, the Governor ruled that it was illegal for the state to pay excess labor charges, so in the future this will not be done. An effort will be made to get town appropriations, in a few places, which can be used for paying the excess labor charges.

Organization.

The Vermont blister rust organization since 1922 has consisted of from 3-4 agents working under the direction of a state leader who is directly responsible to the state forester with whom the Bureau of Plant Industry cooperates. The state forester and the Bureau of Plant Industry also cooperate with the state extension department in educational work using the extension organization to more effectively reach the pine owners. Each agent is assigned to a definite district and is responsible for all blister rust educational and eradication work in his territory. None of the agents have been headquartered at the county agents' offices. During September the Rutland district was abandoned and the work reduced to three districts along the Connecticut River. Any individual cooperative work outside the districts was supervised by the state leader. The following diagram shows the organization in detail.

Vermont Blister Rust Control Organization



*During 1924 the work will be confined to the three Connecticut Valley Districts and only three agents will be employed.

Results Accomplished in Blister Rust Control During 1923.

Cooperative Ribes Eradication.

During 1923, the four Vermont agents and the state leader secured 220 cooperators in control work, 23 of whom did their own work without supervision. These 23 cooperators eradicated 11,212 wild Ribes from 2,870 acres at a cost of \$975.80 or a per acre cost of 34¢. The 197 cooperators whose work was supervised cleared 22,320 acres of 267,358 Ribes at a per acre cost of 33¢. These 197 cooperators expended \$6,074.77 of which the state paid excess labor and transportation charges amounting to \$1251.09 or 20% as much as that expended by the cooperators.

A total of 278570 wild bushes were destroyed on 25,190 acres at a per acre cost of 33.6¢. In other words, the acreage in 1923 was 86% more than the preceding year and the cost was reduced from 46.5 to 33.6¢ per acre or a decrease of 27.2%. Riley estimates 8920 acres of pine were protected or 35% of the area worked contained white pine. Over four percent (1240 acres) of the total area covered was re-eradication work. The Ribes for all areas worked during 1923 averaged eleven per acre. A total of 253 men were employed during the season of eradication work, 1234 cultivated bushes were destroyed, and \$272.02 compensation was paid to 34 individuals for loss of 512 Ribes.

In the three Connecticut River districts, the agents made 156 checks covering 915 acres on land where the eradication work was supervised by state foremen. A total of 4,236 Ribes were found in the plots originally, and the agents' checks produced an additional 199 bushes; or in other words, the crews eradicated 95.5% of the Ribes in the original working. Also, 146 crew checks were made covering 60.5 acres. On these plots the crews pulled 3009 bushes or 9.6% of the Ribes in the original working.

Educational Work.

The four Vermont agents and Riley held 59 meetings attended by 3115 persons, placed 61 exhibits in 21 towns, distributed 3466 publications, published 87 news items, and placed 1211 posters. A total of 734 initial and 548 follow up calls were made. Demonstrations of the disease were given to 340 individuals and 109 group demonstrations reached 494 persons, also demonstrations of eradication methods were made to 140 individuals and 44 group field meetings were

attended by 299 people.

During the year the progress of the work was hindered to a certain extent by the unsettled conditions in the Forestry Department. However in spite of this, the work went forward in good shape. Near the close of the year special efforts were made to get closer cooperation with the extension forces, the Blister Rust agents attending several Farm Bureau community meetings with the idea of getting blister rust adopted as a community project and to establish local project leaders.

Roadside demonstration tags and posters have been printed, also inserts for all correspondence warning owners regarding blister rust. A motion picture outfit has also been used to advantage in several parts of the state.

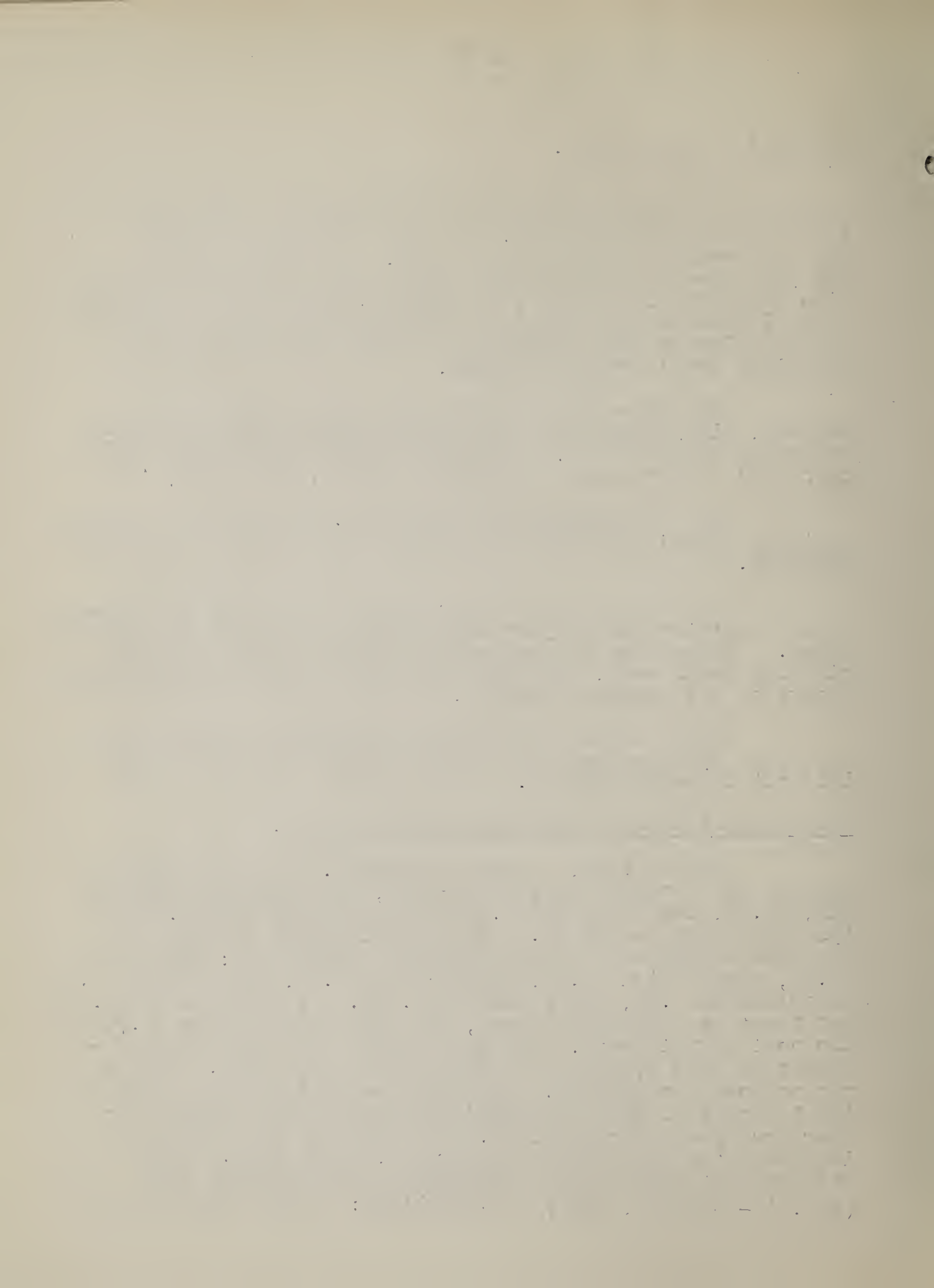
At the beginning of the eradication season a special training school was held for foremen which proved to be very valuable.

Each agent has detailed maps showing the pine areas in his district and project maps locating the various control areas. These maps are especially useful to the agents in planning their work, and they also serve as a permanent office record of the control projects.

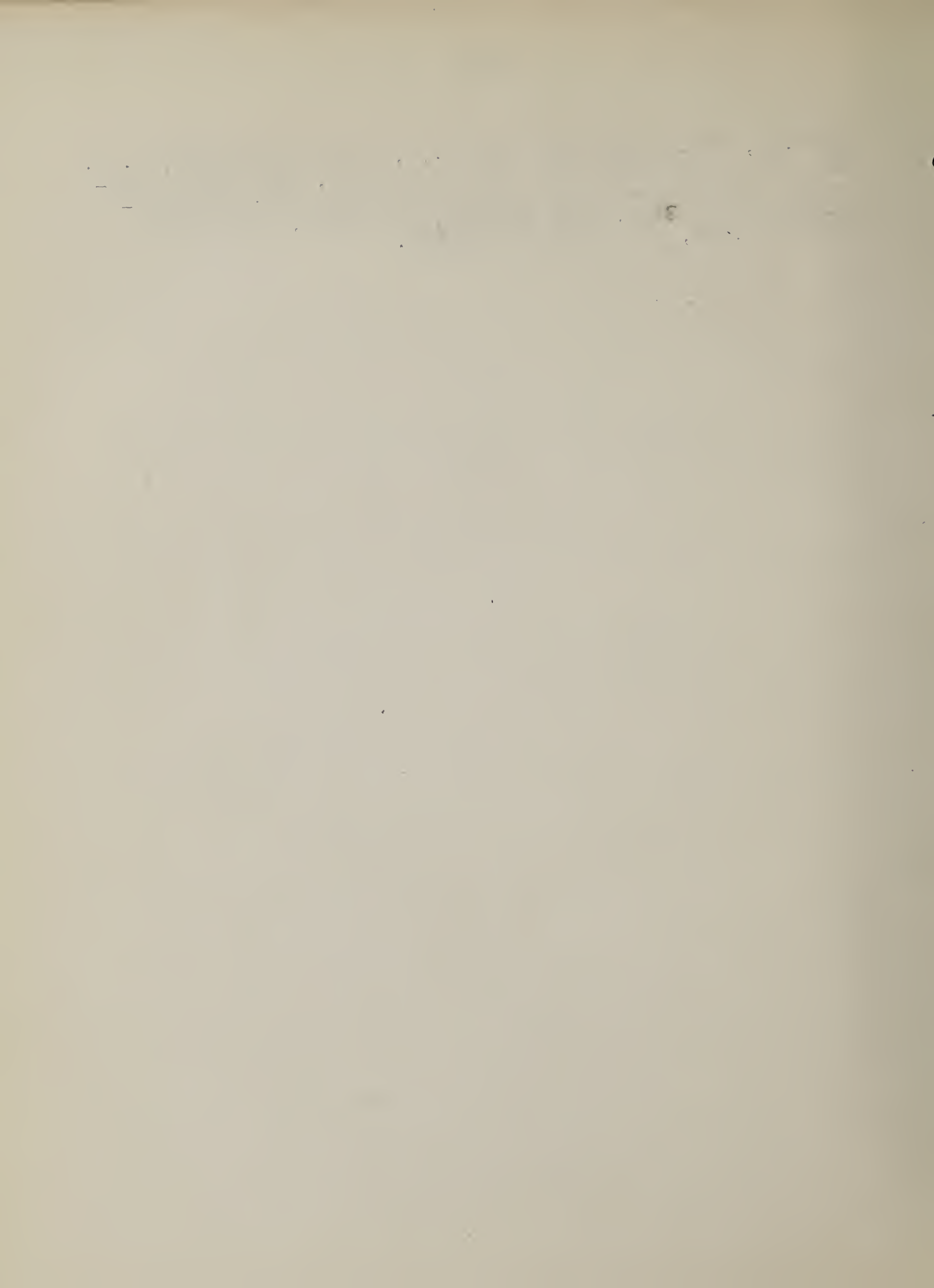
Three special plot studies of blister rust damage were made by Fivaz and the Vermont agents, one plot being laid out in each district.

Blister Rust Control Expenditures in Vermont.

During 1923, a total of \$22484.33 was expended on blister rust control work in Vermont, the Government paying \$12,203.64, the state \$3033.25 and individuals \$7247.34 or 138% more than the state. This total amount of money was expended by projects in the following proportion: education 46.9%, eradication 37.8%, supervision 13.7%, compensation 1.2%, miscellaneous .3%, and field data .02%. A total of \$8498.43 was spent on eradication work, the state paying only 14.7% of the cost of this work. In other words, the individual co-operators paid 479% more money than did the state. There was no town cooperation. Basing the cost per acre on the total amount of money expended for all projects by all co-operators gives a cost of 89.2¢ per acre or an increase of 165% over the eradication cost of 33.6¢ per acre. The balance available for the remainder of this fiscal year (Jan. 1 - June 30, 1924) is as follows: State appropriation



\$266.18, individual funds \$2514.76, federal money \$3711.13. For the fiscal year July 1924 to June 30, 1925 Riley estimates state funds in the following proportion: State appropriation \$3000, town appropriation \$100, individual funds \$9,480, or a total of \$12680.



Commendations.

The most striking feature of the Vermont work is the success the men have obtained in getting individual cooperation from a class of people that are exceptionally conservative. This has been procured in spite of decreased state appropriations, chaos in the Forestry Department, little federal contact, and a personnel of only 3-4 agents. The eradication jobs are small and scattered so a total of 220 cooperators and \$724.34 private money is a real accomplishment. The state leader~~th~~men have cooperated most heartily with the federal representatives of the Bureau of Plant Industry, taking suggestions well and putting them into practice.

The following table gives a comparison of results accomplished before and after the adoption of the new eight year control program.

Table # 25

Comparison of Results in Blister Rust Control Work
in Vermont Between Periods 1917-1921 and 1922-1923.

Period	Total Acreage	Total Wild	Ribes Cult.	Total Cost	Cost per acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. paid by Indiv. Coop.
1917-1921	23978	316821	282	21361.83	.891	-	-	61	\$4021.11
1922-1923	38702	480476	2046	14648.67	.378	-	-	345	12749.56
Total	62680	797297	2328	36010.50	.574	-	-	406	16770.67
1922-1923 to total	61.7	60.2	87.8	40.8		-	-	84.9	76.0

The next table shows the increase in amount of control work performed in 1923 over 1922 and the decrease in the per acre cost.

Comparison of Results in Cooperative Blister Rust Control Work in Vermont Between 1922-1923.

Table # 26

Year	Total Acreage	Total Wild	Ribes Cult.	Total Cost	Cost per acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop-erators	Amt. paid by Indiv. Coop.
1922	13,512	201906	812	6150.24	.455	-	-	125	5502.22
1923	25,190	278570	1234	8498.43	.337	-	-	220	7247.34
Increase or Decrease	+86.5	+37.9	+51.9	+38.2	-25.9			+76.0	+31.8

Weaknesses in Blister Rust Control Work.

- (1) Lack of a definite agreement between cooperators.
- (2) State Blister Rust Funds reduced to \$2000.
- (3) Governor's ruling not to allow state to pay excess labor charges.
- (4) Commissioner's ruling not to allow state funds to be used to pay salary and expenses of foremen between jobs and for wages on rainy days.
- (5) Lack of first class crew foremen who are experienced in improved methods of eradication.
- (6) Lack of definite state and district policy and plan of work covering all phases of work at all seasons.
- (7) Lack of sufficient blister rust educational material and organization in this phase of work. (Rose only two meetings, two exhibits, Stevens no meetings during year.)
- (8) Not sufficient contact with extension forces and utilization of all its facilities.
- (9) Not enough local statistics on pine values and infection conditions.
- (10) Lack of sufficient field contact between agents and leaders, including federal men.
- (11) Lack of general public interest in forestry (small state appropriations for forestry and Blister Rust Control, but large ones for farm projects such as bovine tuberculosis eradication, etc.)
- (12) The state leader will probably take a year's leave of absence beginning September 1924.

Plans for Developing Work during 1924.

As soon as the new state forester assumes his duties a definite cooperative blister rust control agreement will be developed between the state forester, the extension service, and the Bureau of Plant Industry. A definite policy and plan of work will then be formulated for the state and each district, covering all phases of the work at all times of the year. Every effort will be made to get the closest possible cooperation with the extension forces, and to utilize to the fullest extent the facilities offered by this organization. Extension methods will be used wherever this can be done to advantage.

The state forestry department will be urged to allot an additional \$200 to carry out the present blister rust program for the balance of the fiscal year, and to increase the state allotment from \$2000 to ~~\$3000~~ \$3500 for the next fiscal year, in order to allow \$500 for control work on state land. The state will also be urged to advance money to pay the foremen's wages, so these men will not have to wait for their money, and to pay for lost time and traveling expenses of foremen. If this cannot be done, the owners will have to pay the entire cost of eradication work unless town appropriations are obtained for this purpose, and foremen will have to be procured who are willing to work under such uncertain conditions; also, the agents will have to do more transporting of foremen. ~~Three~~ ^{five} foremen will be used during May and June, and nine during the period July to October 1924, and May and June 1925.

One town, Thetford, has appropriated \$100 for 1924 control work. This money can be used in Thetford to pay excess labor charges and foremen's wages and cost of transportation between jobs.

The control program will be conducted according to the present policy of securing private cooperation by personal interviews following a general educational campaign. Each agent will work according to specific plans and make increased efforts to get additional cooperation. Better plans, increased effort, and the use of an additional educational agent ought to obtain the desired eradication results of 33,474 acres per year. The three agents will continue to supervise the foremen and check on the eradication work. The educational phase of the work will be improved by more adequate planning and the use of a special agent to develop this work until Riley goes on leave. During Riley's absence, this ~~educational~~ ^{blister rust control} agent can be used as state leader. It is essential that great care be used in selecting the right man for this job.

in order that he may later develop into a federal specialist.

A blister rust training school for foremen will be held again this year, and only men who reach a certain standard will qualify as foremen.

Additional study plots of blister rust damage will be laid out by the agents and federal specialist, also efforts made to ~~secure~~ reliable data on pine values by means of special studies.

The blister rust specialist and the state leader will spend more time in the field with the agents, aiding them in their problems. The federal supervisor will also give more time to the work in Vermont.

Every effort will be made to stimulate a healthy interest in forestry by talking forestry to every prospect with whom the field men come in contact. From the blister rust viewpoint, if the people are interested in forestry, it will result in sufficient state appropriations to effectively carry on the control work. Our men will do everything possible to get a better contact between the state forestry department and the people of the state.

The following financial plans were developed by Mr. Riley and ~~myself~~ ^{E. C. Fiske} as a solution to the Vermont problems.

For period January 1 to June 30, 1924. Provides for three foremen for May and June.

State Resources

State appropriations available	\$250.00
Private Cooperation reported in December	3762.00
To be raised from Pvt. Cooperation	588.00
Additional State funds needed	1200.00
	<u>\$5800.00</u>

Estimated State Expenditures

Private cooperation already accomplished	\$3762.00
" " to be "	588.00
Cost to state for 6 foremen for lost time and expenses	709.00
Incidental expenses	150.00
	<u>\$5800.00</u>

Federal Resources

Federal money available	\$3711.13
Additional federal money needed	1838.87
	<u>\$5550.00</u>

Table # 27

Estimated Federal Expenditures in Vermont - Jan.1 -June 30,1924

Name	District	Period	Rate per Month	Total Salary	Total Expenses	Grand Total
		1924				
Riley	Entire State	Jan. - June 30	\$200.	\$1200.	\$420.	\$1620.
Asst. Leader	"	June 15 " 30	150.	75.	75.	150.
Rose	Middle Conn. Valley	Jan.1- June 30	140.	840.	450.	1290.
Holden	Lower Conn. Valley	Jan.1- June 30	140.	840.	450.	1290.
Bradder	Upper Conn. Valley	Jan.1- June 30	125.	750.	450.	1200.
Totals	--	--	--	\$3705.	\$1845.	\$5550.

For fiscal year July 1, 1924 to June 30, 1925. Provides for 9 foremen and an assistant state leader.

State Resources

Town Funds.....	\$100.00
*State Appropriation.....	3000.00
Private cooperation.....	9580.00
	<u>\$12680.00</u>

Estimated State Expenses

Cost to state for 9 foremen for lost time and expenses July to Oct. 1924 and May and June 1925.....	\$1350.00
Incidental expenses.....	1250.00

Eradication on state forests to be spent on scouting and crew work.....	500.00
--	--------

Private cooperation to be accomplished	9580.00
	<u>\$12680.00</u>

*Increase of \$500 over allotment for present fiscal year.

Estimated State Expenditures

Additional federal money needed
Federal money available

1871.17
1878.87
1880.00

Estimated Federal Expenditures in Vermont - Jan. 1 - June 30, 1934

Name	District	Period	Total Month	Total Policy	Total Expenditure	Grand Total
Riley	State	Jan. 1 - June 30	\$200.	\$1500.	\$450.	\$1850.
Leah	"	Jan. 1 - June 30	150.	75.	75.	150.
Rose	Valley	Jan. 1 - June 30	100.	840.	450.	1390.
Jordan	Valley	Jan. 1 - June 30	100.	140.	450.	1390.
Meader	Valley	Jan. 1 - June 30	150.	750.	450.	1350.
Totals	--	--	500.	2505.	1845.	2345.

For fiscal year July 1, 1934 to June 30, 1935. Provided
for 2 foremen and an assistant state leader.

State Resources

Yarn Vends.....\$100.00
State Appropriation.....5000.00
Private contribution.....3580.00
\$4580.00

Estimated State Expenditures

Cost to state for 2 foremen for last time
and expenses July to Oct. 1934 and May and
June 1935.....\$1350.00
Incidental expenses.....1250.00

Provision on state forests to be made
as required and grow work.....500.00

Private contribution to be accumulated
\$3580.00
\$4580.00
*Excess of \$500 over amount for current fiscal year.

Federal Resources - Vermont

Federal Allotment.....\$12080.

Table # 28

Estimated Federal Expenditures in Vermont - Fiscal Year 1925.

Name	Period	Rate per Month	Salary	Expenses	Total
Riley Asst. State Leader	July 1 - Sept. 15, 1924	\$200.	\$500.	\$300.	\$800.
Rose	July 1- June 30, 1925	150.	1800.	1200.	3000.
Holden	" "	150.	1800.	1000.	2800.
Bradder	" "	140.	1680.	1000.	2680.
Clerk	" (1/2 ^{time})	50.	600.	-	600.
Total	-	-	\$8180.	\$4500.	\$12680.

Estimated Expenditures in Vermont - Vermont

..... \$1000.

Period	Month	Salary	Expenses	Total
July 1 - Sept. 1, 1954	July	\$200.	\$100.	\$300.
July 1 - Sept. 30, 1955	July	150.	100.	250.
"	"	150.	100.	250.
"	"	150.	100.	250.
"	"	150.	100.	250.
(1956)	"	50.	50.	100.
-	-	500.	400.	900.

Status of WorkMassachusetts

Massachusetts has 775,000 acres of white pine growth, according to the state forestry department which has made a rough strip survey of the forest resources in five of the main pine counties in the state. There are 211 towns in the state with pine worth protecting. During the period 1917 to 1922 inclusive, a total of 232,242 acres were cleared of Ribes. In 1923, an additional 201,931 acres were worked, or a grand total for all years of 434,173 acres. Allowing $1/3$ of this acreage for protection strips not more than 286,554 acres of pine have been covered. Therefore, there remains 488,446 acres of pine in need of protection, or a total area of 732,669 acres that must be covered. To work this area in three years, 244,223 acres must be cleared of Ribes each year, or an equivalent of 1.20 times the amount eradicated in 1923. The total amount of white pine in the state is probably underestimated. There are also many scattered pine lots that should be protected. To cover these scattered stands, and to check over the early eradication areas will require about two additional years. Therefore, the control project in Massachusetts can be completed within the next five years. The results of the control program in Massachusetts are summarized in the following two tables.

Table
29

Summary of Cooperative Ribes Eradication Work in Massachusetts during the period 1917-1923.

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	86,063	46,242	182,571	?	?	2.12
1918	18,706	1,919	356,067	15,805.31	.84	19.69
1919	10,849	2,374	201,882	8,156.18	.75	18.60
1920	19,389	1,421	1224,306	10,422.87	.54	63.14
1921	32,933	4,631	632,618	10,290.54	.313	19.20
1922	64,302	2,368	1578,294	13,375.09	.208	24.5
1923	201,931	14,887	1776,107	28,411.92	.14	7.8
Totals	434,173	73,842	5951,845	86,461.91	*.248	13.7

No cost figure for 1917 available.

*Acreage for 1917 omitted in obtaining per acre cost figures.

Summary of Individual and Town Cooperation in
Blister Rust Control Work in Massachusetts
Period 1917-1923

Table #30

Year	No. Indiv. Coop.	% of Total	Amt. Subscribed by Individuals	% of Total	No. Towns Approp.	No Towns Worked	% of Total	Amt. Approp. by Towns	% of Total
1917	-	-	-	-	-	-	-	-	-
1918	-	-	-	-	-	-	-	-	-
1919	15	2.0	\$1,575.00	9.8	-	-	-	-	-
1920	31	4.2	1,877.22	11.7	1	1	25.0	\$500.00	29.4
1921	35	4.7	2,434.00	15.2	3	3	75.0	1200.00	70.6
1922	194	26.0	3,222.67	20.2	-	-	-	-	-
1923	*470	63.1	6,894.90	43.1	-	-	-	-	-
Totals	745	100.0	\$16,003.79	100.0	4	4	100.0	\$1700.00	100.0

* 586 additional persons also cooperated in eradicating cultivated Ribes in 1923.

The Ribes factor in Massachusetts varies considerably. For instance, in four districts where eradication work was performed in 1923 the Ribes numbered less than two per acre, while in Hampden county they numbered three and in Essex five. However, in Berkshire and Northern Worcester the bushes numbered respectively 19 and 60 per acre. Thus in six districts worked in 1923, the Ribes are few and located more or less in definite sites so that preliminary scouting is practicable. The same scarcity of wild bushes exists in Bristol, Suffolk and Barnstable counties. As a consequence large areas can be covered for Ribes at a very low cost. Due to the scarcity of Ribes, pine infection is, on the whole, very light. Spot infections can be located in most of the towns, but the majority of these infections can be traced to cultivated black currants, most of which were destroyed in 1916 and 1917. There is no question but that the wholesale destruction of the cultivated black currants in 1917 had a decided effect in checking the spread of the disease, as very few young infections can now be found in those counties

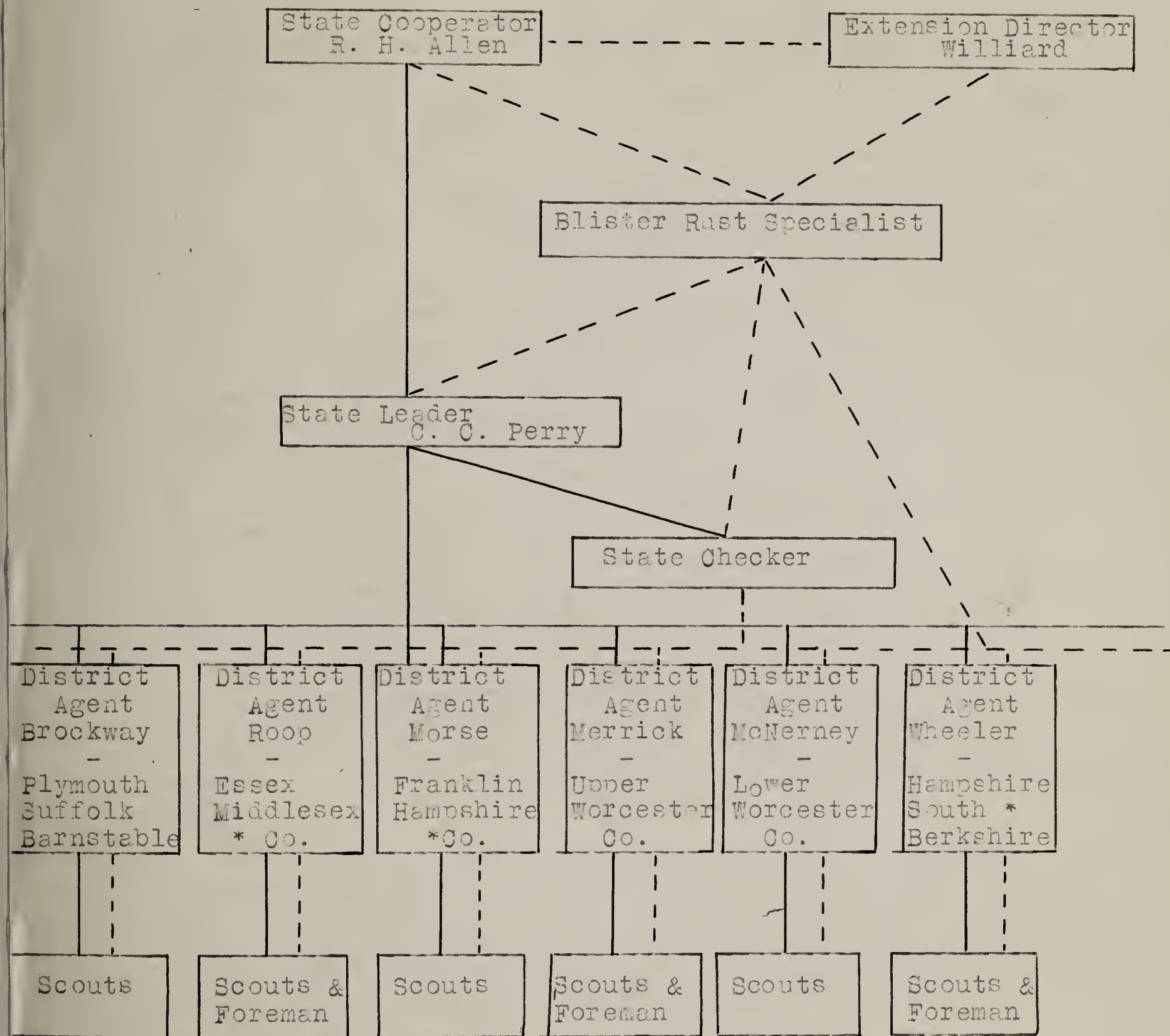
where the wild Ribes are scarce. However, in parts of Essex, Northern Worcester, Western Hampden, and in Berkshire county, where the wild Ribes are more plentiful, pine infection is far more abundant and seriously threatens the continued production of white pine in many sections unless prompt control measures are applied. In such districts, crew methods of eradication have to be used over a considerable part of the areas.

The scarcity of wild Ribes in certain districts has also had a direct bearing on the method and amount of cooperation in control work. The state policy is to scout the areas block by block and to get the cooperation of pine owners in eradicating wild Ribes from their lands where such bushes are found to any extent. Many pine owners have promised cooperation in advance. However, frequently when the scouts covered their properties, no bushes could be found, or so few that the scouts personally destroyed them. On the other hand, in sections where Ribes are more abundant, 470 individuals cooperated during 1923 in eradicating over a million wild bushes. Where conditions require crew methods, the state furnishes, for a limited time, trained foremen to supervise the private eradication work. Therefore, as the state assumes the burden of scouting and furnishes trained foremen for supervising the work of individual cooperators, the bulk of the cost of eradication (70%) has been paid by the state. No town cooperation has been solicited since the new control program began. However, before 1921, a few towns, having an abundance of Ribes and pine infection, appropriated funds for control work.

Organization.

The Massachusetts blister rust organization since 1922 has consisted of six permanent district agents working under the supervision of a state leader who is indirectly responsible to the Bureau of Plant Industry and directly responsible to the state nursery inspector, who has the regulatory authority of the state department of agriculture with whom the Bureau cooperates. The Bureau and the state department of agriculture also cooperate in its educational work with the state extension service through its state director. Each agent has been assigned to a definite district and is responsible for all blister rust educational and control work in his territory. During the field season, each agent supervises a few state scouts, and in some districts, where wild Ribes are abundant, several state crew foremen. The majority of the agents have had an assistant who was employed, more or less continuously, to aid in scouting and educational work. A state checker of eradication work was also employed during 1923. The following chart shows the organization in detail.

Blister Rust Control Organization in Massachusetts 1923 & 1924



* { Hampshire added to Morse's district in 1924
 Middlesex " " Roop's " " "
 So. Berkshire " " Wheeler's " " "
 Suffolk & Barnstable " " Brockway's " " "

Results Accomplished in Blister Rust Control during 1923.

Cooperative Ribes Eradication.

1923 was the banner year of blister rust control accomplishment in Massachusetts. Six permanent agents and six temporary assistants (who aided in scouting and interview work) secured 1056 cooperators in control work, of whom 470 eradicated wild Ribes and 586 destroyed their cultivated bushes. On this cooperative work the state supplied trained foremen to supervise the eradication of Ribes at a cost of \$6863.94 while the individuals expended \$6894.90. However, 39% of these owners destroyed the wild Ribes on 1407 acres without any state supervision. On all areas worked by cooperators, a total of 73,787 acres were cleared of 1,351,177 wild Ribes at a per acre cost of 19 cents. In addition the scouts covered 124,844 acres and destroyed 206,920 bushes at a cost of 7.3 cents per acre. In other words, the six blister rust agents supervised the eradication of 1,558,107 wild Ribes on 198,631 acres of private land. A total of 746 persons were engaged in this control work, 699 of whom were classed as owners' labor. The state forestry department acting independently cleared 3300 acres of 218,000 wild bushes at a cost of \$5331. The total acreage worked in the state during 1923 of 201,931 acres is an increase of 214% over the amount eradicated in 1922, also the per acre cost was reduced from 20.8 cents to 14 cents. A total of 14,887 cultivated Ribes were destroyed during the season but only 13 persons were paid compensation (\$243.35.) Approximately 127,000 acres of pine were protected and 100,000 acres of non pine land eliminated. Of the total area covered during 1923, 16,943 acres consisted of re-eradication work.

The six agents made 186 eradication checks, covering 3280 acres, while the state checker laid out 181 plots covering 274 acres. A total of 374,006 wild Ribes were found originally on these plots, while the checks revealed 2467 additional bushes, or in other words, the crews pulled 99% of the Ribes in the original working.

Educational Work.

During the year the agents gave talks at 85 meetings attended by 5874 people, placed 55 exhibits in 77 towns, distributed 11,403 publications in 177 towns, published 232 items which reached 300 towns, and placed

84 posters in 50 towns. A total of 4503 initial interviews and 1606 follow up calls were made. Demonstrations of the disease were given to 282 individuals and 27 such group demonstrations were attended by 184 persons; also demonstrations of eradication methods were made to 425 individuals and at 43 such group field meetings 132 people were present.

The development of a definite state policy and plan of work, including a district procedure in Ribes eradication, was of great assistance to the agents in organizing their control program.

Blister Rust Control Expenditures in Massachusetts.

During the calendar year of 1923, a total of \$48,164.49 was spent on control work in Massachusetts, the individuals paying \$6894.90, the state \$17942.15, and the Government \$23,327.44. This \$48,164.49 was expended according to projects in the following proportion: eradication 47.7%, education 44.4%, supervision 7.2%, field data .3%, compensation .1%, and miscellaneous .04%. A total of \$23,080.92 was spent on Ribes eradication by the state and individuals, the state paying \$16,186.02, or 70% of the total cost of this work, or 134% more than expended by individuals. A state checker was employed during the season at a cost of \$726.73. Basing the cost per acre on the total amount spent for all projects during 1923 gives a per acre cost of 24.3 cents or an increase of 111% over the eradication cost of 11.5 cents per acre. The federal balance available for the remainder of the fiscal year January 1 - June 30, 1924 is \$11,201.87. There are no state funds available at this time, but \$18,000 state money will be at hand as soon as the present state blister rust appropriation bill is passed. In addition at least \$6000 individual money will be expended on blister rust work during the calendar year 1924. Therefore, for the fiscal year July 1, 1924 - June 30, 1925 there will be at least \$23,000 cooperative state money.

Commendations.

Massachusetts is to be congratulated on the splendid increase in the amount of acreage cleared of Ribes in 1923. The securing of 1056 cooperators is a most commendable accomplishment, especially in a section where it is frequently difficult to show a pine owner blister rust infection on nearby pine. Although the agents are placed in a rather delicate situation as regards forestry matters, no complications have arisen, as the men have tactfully referred all requests for forestry information to their state leader. In Worcester, Plymouth and Hampshire counties good cooperation has been obtained from the extension forces. Massachusetts was the first state to work out a specific plan dividing each district into definite units, which were to be covered during certain years, in order to complete the control project within the time limit. Massachusetts was also one of the first states to employ a state checker of eradication work. During the past two years excellent exhibits at fairs have produced exceptionally good results in the way of getting leads on prospects. All the state men have developed considerably during the past two years in becoming better fitted to their jobs. This is especially true of the state leader. Agent Roop has done exceptionally good work in Essex County along all phases of the control program. Roop and Perry were the only men to submit their annual reports on time and in each case the report was a fine piece of work. At all times a most gratifying spirit of cooperation has existed between the state and federal men.

The table below gives a comparison of results accomplished before and after the adoption of the new eight year control program. (1917 figures omitted because of doubt as to their accuracy.)

Table #31

Comparison of Results in Blister Rust Control Work in Massachusetts Between Periods 1918-21 and 1922-23.

Period	Total Acreage	Total Ribes Wild	Cult	Total Cost	Cost per acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. pd. by Indiv. Coop.
1913-1921	81877	2414873	10345	44674.90	.545	4	\$1700.00	81	5886.22
1922-1923	266233	3354401	17255	41787.91	.157	-	-	664	10117.57
Totals	348110	5769274	27600	86461.91	.248	4	1700.00	745	16003.79
% 1922-23 to total	76.5%	58.2%	62.5%	48.3%				89.1	63.2

The next table shows the great increase in amount of control work performed in 1923 over 1922, and the decrease in the per acre cost.

Comparison of Results in Cooperative Blister Rust Control Work in Massachusetts Between 1922 & 1923.

Table #32

Year	Total Acreage	Total Wild Ribes	Ribes Cult.	Total Cost	Cost per acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop. Wild Ribes Erad.	Amt. pd. by Indiv. Coop.
1922	64302	1578294	2368	13375.09	.208	-	-	194	3222.67
1923	201931	1776107	14887	28411.92	.14	-	-	*470	6894.90
% Increase or Decrease	+214.0	+12.5	+528.6	+112.4	-32.7	-	-	+142.3	+113.9

* 586 additional persons also cooperated in eradicating cultivated bushes.

Weaknesses.

Before reviewing any remarks under the heading of weaknesses, one should first consider the following points:

1. Over a large portion of the state it is difficult to find any pine infection, except perhaps a few old cankers, which came from diseased cultivated black currants.
2. Individual cooperation in control work is needed from only a small proportion of the total number of pine owners, as the wild Ribes are scarce and localized.
3. All other forestry work in the state is conducted by a department entirely separate from the one with which the Office of Blister Rust Control cooperates.
4. The state agricultural extension service is a complicated one, as the county organizations function more or less independently of the state director of extension.
5. Each year the district control work is confined to a definite group of towns; consequently, in most cases it is not practicable to headquarter the Blister Rust Agents at the offices of the County Agents.

Weaknesses.

1. No blister rust agent has been placed in Berkshire county, although blister rust is more serious there than in any other part of the state. Apparently certain members of the county board of directors are seriously opposed to having the county extension service cooperate in blister rust control work.
2. The present state plan of work does not cover all phases of the educational and eradication program, being limited chiefly to a statement of what areas are to be worked each year in order to complete the control project within the eight year period. A detailed plan of work is needed for each district covering every phase of the agents' duties at all times of the year.
3. Lack of effective organized publicity in blister rust control. (The public, as a whole, does not know very much about the disease or what is being accomplished. The Massachusetts agents rate below the average in most phases of the general educational work.)

4. The state leader is still weak in leadership qualities, too narrow in his viewpoint and unwilling to get out of the trodden path. He also does not have sufficient field contact with his men, usually confining his field work to office conferences with the agents. As a whole, the agents do not know as much about blister rust and forestry work in general as they should. This is especially true of Morse, Wheeler and McNerney. Morse needs close supervision in order to produce the desired results; McNerney gives the impression of being an opinionative person; and Wheeler lacks training and experience.

5. Lack of sufficient federal field contact in Massachusetts to ascertain needs and apply remedies.

6. Inadequate cooperation with the state forestry department and the state extension service. The state leader has practically no personal contact with the state director of extension, and very little with the forestry department. In Franklin, Hampshire and Essex counties there is really no cooperation with the extension forces although blister rust agents are working in these sections. However, there is little need for control work in Hampshire County. In Franklin, the eradication work is mostly in towns at some distance from the County Agent's Office and the blister rust agent has already gotten in wrong with certain members of the county agricultural extension office. In Essex, although the two agents are on friendly terms, there is little real cooperation. Roop has tried in many ways to get closer cooperation, but feels it is useless to waste his time in further efforts along this line. Even the state director has difficulty in getting adequate cooperation from this county agricultural agent.

7. Extension methods have not been used to any extent. No communities have made blister rust control or forestry a special project, nor have any such local leaders been appointed.

8. Cooperation with lumber companies has decreased in amount due to fluctuating policies and lack of consistent work.

Plans for Developing Control Work - 1924.

To complete the control program in Massachusetts within five years, six permanent blister rust agents will be employed. During the next three years, 244,000 acres will be cleared of Ribes each year, or 42,000 acres more per year than in 1923. This increase will be obtained by better organization of the agents' work, so more pine owners can be seen and additional cooperation procured. A few additional state scouts will also be employed, from state funds, during the field season. The efficiency of the eradication work will be maintained by the state furnishing trained foremen to cooperators for a limited time and by employing a state checker from May to September. Also, the agents will continue to do as much checking as practicable. The educational and eradication work, on the whole, will be continued according to the present state policy. However, the following changes will be made in order to make the work more effective:

1. Control work will be extended into Berkshire County by placing Wheeler in charge of Hampden and southern Berkshire counties. Hampshire and Northern Berkshire counties will be added to Morse's present district - Franklin County. The pine lots are comparatively few and scattered in Hampshire and Northern Berkshire counties so that one man ought to be able to handle the supervision of the control work in this entire section. It is expected that by extending operations into Berkshire County from Hampden, the opposition to blister rust work will be gradually replaced by hearty cooperation in spite of the present attitude of the Berkshire Board of Directors. Later, it may be possible to place the work in Berkshire County on a farm forestry extension basis with the blister rust included as a part of the program.

2. A definite policy and plan of work covering every phase of the agents' duties at all seasons of the year will be developed for each district. This plan will be made by the state leader in cooperation with the agents and the Blister Rust Control Office at Boston.

3. A definite plan for publicity work will overcome most of the present weaknesses in this phase of the program, provided someone is on hand continuously to keep the plan working to its fullest extent. The appointment of a federal specialist for southern New England will produce more federal contact and the specialist will give a large part of his

efforts to seeing that the desired results are obtained. The federal supervisor will also give more of his time to field work in Mass.
~~time to field work in Massachusetts.~~

4. Closer federal contact in Massachusetts will also aid in overcoming many of the weaknesses in the personnel. Special efforts will be made to give the agents a thorough understanding of their work by more frequent conferences and assistance in the field.

5. Closer cooperation will be obtained with the state forestry department and the extension service by developing a definite cooperative policy which will allow full utilization of the facilities offered by each co-operator. The state and federal leaders will maintain closer contacts with the heads of the cooperating organizations and their district men. The Blister Rust Agents will also keep in close touch with the extension forces and forestry employees in their districts and utilize all available sources for carrying on blister rust educational work. The federal and state leaders will make a special effort to get better cooperation with the extension forces in Essex and Franklin counties, by overcoming the difficulties that now stand in the way.

6. When the cooperating agencies are fully agreed on a definite policy, it will be possible to get forestry placed as a community project and to appoint local forestry leaders, who will include blister rust control as a part of their work. The appointment of a forestry extension specialist should be fundamental in getting such work started. There is little need of project leaders simply on blister rust control in most parts of Massachusetts, as the disease is not serious enough in most sections to maintain sustained interest in such local leaders. With the bulk of the areas covered by state scouts, it is difficult to see just how such local leaders could function, outside of giving moral support or aiding in general educational work. As the control program develops, efforts will be made to help get farm forestry extension work started, especially in those counties where the control project will be completed within a short time. However, in no case will farm forestry be allowed to interfere with the completion of the control program within the eight year period.

7. A definite plan of procedure regarding co-operation with lumber companies and large estate owners will be developed. Cooperation will be urged on this basis, and there will be no changes in the basic principles during the control program, provided the neces-

sary appropriations are maintained.

Statement of Blister Rust Control Funds in Massachusetts.

Table # 33

Source of funds	Jan. 1, 1924-June 30, 1924 Amount	July 1, 1924-June 30, 1925 Amount
State appropriation	*	*\$18,000.
Nursery inspection	0	0
Town appropriation	0	0
Other local coop. funds	\$1000. (estimate)	5000. (estimate)
Total state coop. funds	*	2300.
Federal funds al- lotted	11201.87	22875.

*The state appropriation for 1924 has not as yet been passed, however, it is expected \$18,000 will be made available for control work. This state money becomes available as soon as the appropriation bill is passed.

Estimate of Federal Expenditures in Massachusetts
During Period January 1 - June 30, 1924.

Table # 34

Name	Period	Rate	Salary	Expenses	Total
Perry	Jan. 1-June 30	188.34	1130.04	198.83	1328.87
Roop	" "	170.00	1020.00	475.00	1495.00
Brockway	" "	145.00	870.00	475.00	1345.00
Morse	" Apr. 30	130.00	520.00	283.50	803.50
Wheeler	" "	130.00	780.00	475.00	1255.00
Merrick	" "	150.00	900.00	475.00	1375.00
McNerney	" "	130.00	780.00	475.00	1255.00
Dickey	" "	108.00	432.00	175.00	607.00
Doore	" " 15	117.00	409.50	175.00	584.50
	Apr. 16-June 30	130.00	260.00	250.00	510.00
Clave	Jan. 1-Apr. 30	117.00	468.00	175.00	643.00
Total			\$7628.04	\$3573.83	\$11201.87

Estimate of Federal Expenditures in Massachusetts
During Period July 1, 1924 - June 30, 1925.

Table # 35

Name	Period	Rate	Salary	Expenses	Total
	1924 1925				
Perry	July 1 - June 30	208.33	2500.	100.	2600.
Roop	" "	170.00	2040.	1100.	3140.
Brockway	" "	160.00	1920.	1100.	3020.
Doore	" "	130.00	1560.	1100.	2660.
Wheeler	" "	150.00	1800.	1100.	2900.
Merrick	" "	160.00	1920.	1100.	3020.
McNerney	" "	150.00	1800.	1100.	2900.
Clave	Dec. 1 - Apr. 30	125.00	625.	300.	925.
--	" "	125.00	625.	300.	925.
Dickey	" "	117.00	585.	300.	885.
Total			\$15195.	\$7600.	\$22975.

Statement of Federal Expenditures in Massachusetts
During Period July 1, 1900 - June 30, 1901

Item	Period	July 1 - June 30	July 1 - June 30	July 1 - June 30	July 1 - June 30
Salaries		110.00	110.00	110.00	110.00
Travel		10.00	10.00	10.00	10.00
Postage		5.00	5.00	5.00	5.00
Printing		10.00	10.00	10.00	10.00
Telephone		10.00	10.00	10.00	10.00
Light		10.00	10.00	10.00	10.00
Heat		10.00	10.00	10.00	10.00
Water		10.00	10.00	10.00	10.00
Gas		10.00	10.00	10.00	10.00
Electricity		10.00	10.00	10.00	10.00
Interest		10.00	10.00	10.00	10.00
Depreciation		10.00	10.00	10.00	10.00
Repairs		10.00	10.00	10.00	10.00
Supplies		10.00	10.00	10.00	10.00
Other		10.00	10.00	10.00	10.00
Total		150.00	150.00	150.00	150.00

Statement of Federal Expenditures in Massachusetts
During Period July 1, 1901 - June 30, 1902

Item	Period	July 1 - June 30	July 1 - June 30	July 1 - June 30	July 1 - June 30
Salaries		110.00	110.00	110.00	110.00
Travel		10.00	10.00	10.00	10.00
Postage		5.00	5.00	5.00	5.00
Printing		10.00	10.00	10.00	10.00
Telephone		10.00	10.00	10.00	10.00
Light		10.00	10.00	10.00	10.00
Heat		10.00	10.00	10.00	10.00
Water		10.00	10.00	10.00	10.00
Gas		10.00	10.00	10.00	10.00
Electricity		10.00	10.00	10.00	10.00
Interest		10.00	10.00	10.00	10.00
Depreciation		10.00	10.00	10.00	10.00
Repairs		10.00	10.00	10.00	10.00
Supplies		10.00	10.00	10.00	10.00
Other		10.00	10.00	10.00	10.00
Total		150.00	150.00	150.00	150.00

RHODE ISLANDStatus of Work.

Rhode Island has 125,000 acres of pine land which has been type mapped and the contents of the stands estimated. During the period 1917 to 1922 inclusive, 122,997 acres were reported cleared of Ribes. This would indicate practically all the pine land had been worked; but as a matter of fact, only about 75% of the pine land has been covered, even including the 1923 eradication figures of 31,308 acres. This discrepancy can be attributed to two causes: first, part of the acreage cleared of Ribes was re-eradication work; second, bushes were pulled from land not supporting any pine, as such areas were considered potential pine land. There remains about 40,000 acres of pine land, and at least an equal amount of potential pine areas in need of protection, or about two years additional work provided yearly progress is made at 1.27 times the amount of acreage covered during 1923. The following table summarizes the eradication work in Rhode Island.

Summary of Cooperative Ribes Eradication Work in Rhode Island
Period 1917-1923.

Table # 36

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	8,236	803	2,635	\$2619.90	.32	.32
1918	12,715	492	13,927	3527.97	.28	1.09
1919	40,411	1657	45,320	5609.74	.14	1.12
1920	23,164	1550	5,973	3796.92	.16	.26
1921	26,971	552	16,022	3826.92	.142	.59
1922	11,500	132	11,764	1840.00	.160	1.02
1923	31,308	1464	14,275	1895.96	.06	.45
Totals	154,305	6650	109916	\$23117.41	0.149	0.7

Pine infection has not become severe, as the wild Ribes are small and localized in definite types and average less than one bush per acre. A few spot pine infections, caused by cultivated Ribes have been found, but in each case the diseased trees were destroyed, so the rust has not spread. Due to these conditions, the control work has been conducted almost entirely on the basis of preliminary scouting. The scouts, paid from state funds, have performed practically all the wild Ribes eradication work as very little individual cooperation has been solicited except in the destruction of cultivated bushes. Six individuals subscribed \$550 for control work in 1918 to offset the lack of state funds, and in 1923 one co-operator expended \$15.36 in eradicating wild Ribes on his property. No request has been made for town cooperation, as it was not considered necessary.

The blister rust organization since 1919 has consisted of a state agent and four to six scouts working under the direction of the agent. He is directly responsible to the state entomologist (who has the regulatory authority) of the State Board of Agriculture with whom the Bureau of Plant Industry cooperates. The State Entomologist (Mr. Stene) is also the state director of extension with whom the Bureau also cooperates in its educational work. Since Mr. Sheals became assistant state entomologist, Anderson has assumed all the state leader's duties. However Sheals, acting for Stene, gives general supervision to Anderson's work. The following chart shows the organization in detail.

Present Organization

Stene	State Entomologist Director of Extension
Sheals	Asst. Entomologist
Anderson	Blister Rust Agent
4-6 Scouts	

Recommended Organization

State Forester (Sheals)	Ext. Director (Stene) BPI
Forest Extension Specialist (Anderson)	
6 Scouts	

Results Accomplished in Rhode Island During 1923.

During 1923 only one agent and four scouts were employed in Rhode Island. However, a greater amount of effective work was accomplished than in any previous year. These scouts cleared 31,308 acres of wild Ribes (an increase in acreage of 172% over 1922) at a per acre cost of six cents, which is eight cents less than any previous eradication figure in Rhode Island, and a decrease of 62.5% over 1922. These good results can be directly attributed to the close supervision given by Anderson. In addition, Anderson spoke at four meetings attended by 180 people, placed seven exhibits in seven towns, distributed 285 publications, published 21 news items, placed 125 posters in six towns, interviewed 135 persons and had 83 follow up calls. In addition, individual demonstrations of the disease were given to 21 persons, and nine people were shown eradication methods. A total of 34 persons cooperated in eradicating cultivated Ribes, while one individual aided in pulling 1,900 wild Ribes on his property. During the season a total of 14,275 wild bushes and 1464 cultivated Ribes were destroyed. No compensation was paid. Anderson also laid out 80 advance check plots covering 311 acres. These plots contained 3191 bushes. The checks showed the scouts pulled 96% of the Ribes in the original working of the areas.

Expenditures.

During the calendar year 1923, a total of \$5716.30 was spent on blister rust work in Rhode Island, the state and its cooperators expending \$2920.54, while the Government spent \$2795.76. The state money was paid out for blister rust work as follows: \$2,177.18 from the state appropriation of \$2500; \$728 from the general funds for Sheals' time on blister rust work; and \$15.36 by one cooperator. There remains a balance of \$322.82 from the state appropriation for the period January to June 1924. The federal balance for this period is \$1583.21.

The state and federal expenditures, by projects, for the calendar year 1923 were in the following proportion: education 54.9%; Ribes eradication 31.1%; supervision 7.3%; field data .2%; and Miscellaneous .1%. The eradication work cost \$1895.96, the state paying all costs except \$15.36.

The following table shows a comparison of results obtained in control work before and after the new blister rust policy went into effect June 1, 1922.

Comparison of Results in Cooperative Blister Rust Control Work
in Rhode Island Between Periods 1917-1921 and 1922-1923.

Table # 37

Period	Total Acreage	Total Ribes		Total Cost	Cost per Acre	No. Coop. Towns	Amt. Town Money Approp.	No. of Indiv. Coop.	Amt.pd. by Indiv. Coop.
		Wild	Cult.						
1917-1921	111497	83877	5054	\$19381.45	.174	-	-	6	\$550.00
1922-1923	42808	26039	1596	3735.96	.087	-	-	1	15.36
Total	154305	109916	6650	23117.41	.149	-	-	7	565.36
% 1922- 1923 re- sults to total	27.8	23.7	24.0	16.1		-	-	14.3	2.7

This table shows that about one quarter of the total amount of control work has been done since the new program started.

The next table shows the splendid increase in eradication results obtained in 1923 over 1922.

Comparison of Results in Cooperative Blister Rust Control Work
in Rhode Island Between 1922 & 1923.

Table # 38

Year	Total Acreage	Total Ribes		Total Cost	Cost per acre	No. Coop. Towns	Amt.Town Money Approp.	No. Indiv. Coop.	Amt.pd. by Indiv. Coop.
		Wild	Cult.						
1922	11500	11764	132	1840.00	.160	-	-	-	-
1923	31308	14275	1464	1895.96	.06	-	-	-	\$15.36
% In- crease or Decrease	+172.2	+21.3	+1009.0	+3.0	-62.5	-	-	-	

Weaknesses in the Rhode Island Control Work.

(1) Blister rust control has progressed in Rhode Island in spite of the absence of a forestry policy and a forestry department. (Forestry is the first thing that needs to be developed in this state: blister rust control is secondary). In Rhode Island 85% of the forest areas are on the farms. Consequently, forestry is found to be chiefly a farm wood lot proposition. The present state forester has confined his work chiefly to supervising four fire towers. There is now a bill before the legislature to place forestry under the State Board of Agriculture and to appoint a technically trained forester as state forester. Two farm bureaus are backing this bill, and urging that extension methods be employed to reach the woodlot owners so such people can be aided in their forestry problems. According to Sheals and Anderson, there is a constant demand for information on the farm woodlot. These men have given their personal advice on such matters without letting it interfere with their regular duties.)

(2) The blister rust situation in Rhode Island does not justify keeping an agent to do only scouting and supervise the work of four scouts. (The main part of the agent's work should be extension forestry. However, it appears unwise to attempt to place a forestry extension specialist in Rhode Island until a staple forestry department is established and functioning under a definite policy. This view is also taken by Stene, Sheals, and Collingwood.)

(3) The blister rust agent has hesitated to carry on much forestry publicity under the old regime, but if a new forestry department is organized, he could probably help considerably along this line after a definite policy covering extension forestry and blister rust had been developed.

(4) Lack of proper transportation facilities has handicapped the scout work; the men being continually delayed by a worn out Ford truck. (The scouts employed are very capable, and the work is such that only trained men can be used effectively. Consequently, it is advisable to transport these scouts from their homes to the field, especially as local help cannot be obtained, and boarding houses are lacking in the vicinity of the areas worked. All such places can be reached by car from the men's headquarters in less than one hour.)

Plans For Developing Work During 1924 - Rhode Island.

(1) In order to complete the control program within the next two years, the eradication work will be maintained on a yearly basis at least 1.27 times the 1923 rate of progress. Therefore, six scouts will be employed during the eradication seasons for the next two years, and their work will be closely supervised by the agent.

(2) A good truck will be furnished for the use of the scouts. One of the federal trucks now stored at Warrensburg will be put in running shape and turned over to the agent for use of the scouts. Our office has no need for this machine, as it is not fit for long trips.

(3) As little progress can be made in extension forestry at this time, Anderson will continue, this season, under present arrangements, and be allowed to aid in forestry extension work as far as practicable without letting it interfere with his blister rust control duties.

(4) A definite policy covering extension forestry and blister rust control will be developed just as soon as a forestry department is well established.

(5) When a forestry department is established, our office will cooperate with it rather than with the State Entomologist. The regulatory authority should be placed in the hands of the state forester; or if not, cases needing prosecution can be turned over to the State Entomologist.

(6) Our aim will be to have part of the agents time definitely assigned to extension forestry as soon as practicable, and paid from extension funds.

Statement of Blister Rust Control Funds in Rhode Island

Table # 39

Source of funds	July 1, 1923-June 30, 1924 Amount	July 1, 1924-June 30, 1925 Amount
State Appropriation	\$322.82	\$2500.00
Nursery Inspection	-	-
Town Appropriation	-	-
Other Local Coop. Funds	-	1000.00
Total State Coop. Funds	322.82	3500.00
Federal Funds Allotted	1583.21	³¹⁸⁰ 3250 .00

Estimated Federal Expenditures in Rhode Island

Table # 40

Name	Period	Rate Per Mo.	Total Salary	Total Expenses	Total
Anderson	Jan. 1 - June 30, 1924	\$165.00	\$990.00	\$593.21	1583.21
"	¹⁹²⁴ July 1 - June 30, 1925	165.00	1980.00	¹²⁰⁰ 1200 .00	³¹⁸⁰ 3250 .00

Summary of Receipts and Disbursements for the Year 1900

Jan. 1 - 1900 - 100.00

Receipts	Disbursements	Balance
Jan. 1 - 1900 - 100.00		100.00
Jan. 2 - 1900 - 50.00		50.00
Jan. 3 - 1900 - 25.00		25.00
Jan. 4 - 1900 - 10.00		15.00
Jan. 5 - 1900 - 5.00		10.00
Jan. 6 - 1900 - 2.50		7.50
Jan. 7 - 1900 - 1.25		6.25
Jan. 8 - 1900 - .62		5.63
Jan. 9 - 1900 - .31		5.32
Jan. 10 - 1900 - .16		5.16
Jan. 11 - 1900 - .08		5.08
Jan. 12 - 1900 - .04		5.04
Jan. 13 - 1900 - .02		5.02
Jan. 14 - 1900 - .01		5.01
Jan. 15 - 1900 - .00		5.01
Jan. 16 - 1900 - .00		5.01
Jan. 17 - 1900 - .00		5.01
Jan. 18 - 1900 - .00		5.01
Jan. 19 - 1900 - .00		5.01
Jan. 20 - 1900 - .00		5.01
Jan. 21 - 1900 - .00		5.01
Jan. 22 - 1900 - .00		5.01
Jan. 23 - 1900 - .00		5.01
Jan. 24 - 1900 - .00		5.01
Jan. 25 - 1900 - .00		5.01
Jan. 26 - 1900 - .00		5.01
Jan. 27 - 1900 - .00		5.01
Jan. 28 - 1900 - .00		5.01
Jan. 29 - 1900 - .00		5.01
Jan. 30 - 1900 - .00		5.01
Jan. 31 - 1900 - .00		5.01

Summary of Receipts and Disbursements for the Year 1901

Receipts	Disbursements	Balance
Jan. 1 - 1901 - 100.00		100.00
Jan. 2 - 1901 - 50.00		50.00
Jan. 3 - 1901 - 25.00		25.00
Jan. 4 - 1901 - 10.00		15.00
Jan. 5 - 1901 - 5.00		10.00
Jan. 6 - 1901 - 2.50		7.50
Jan. 7 - 1901 - 1.25		6.25
Jan. 8 - 1901 - .62		5.63
Jan. 9 - 1901 - .31		5.32
Jan. 10 - 1901 - .16		5.16
Jan. 11 - 1901 - .08		5.08
Jan. 12 - 1901 - .04		5.04
Jan. 13 - 1901 - .02		5.02
Jan. 14 - 1901 - .01		5.01
Jan. 15 - 1901 - .00		5.01
Jan. 16 - 1901 - .00		5.01
Jan. 17 - 1901 - .00		5.01
Jan. 18 - 1901 - .00		5.01
Jan. 19 - 1901 - .00		5.01
Jan. 20 - 1901 - .00		5.01
Jan. 21 - 1901 - .00		5.01
Jan. 22 - 1901 - .00		5.01
Jan. 23 - 1901 - .00		5.01
Jan. 24 - 1901 - .00		5.01
Jan. 25 - 1901 - .00		5.01
Jan. 26 - 1901 - .00		5.01
Jan. 27 - 1901 - .00		5.01
Jan. 28 - 1901 - .00		5.01
Jan. 29 - 1901 - .00		5.01
Jan. 30 - 1901 - .00		5.01
Jan. 31 - 1901 - .00		5.01

CONNECTICUTStatus of Control Work.

The pine acreage in Connecticut, listed at 190,000 acres has been accurately type mapped and the volume of the stands estimated. There are 49 towns in Connecticut with native pine worth protecting and 101 towns with planted pine. During the period 1917-1922, a total of 23,345 acres were cleared of Ribes. An additional area of 14,062 acres was covered in 1923, or a total for all years of 37,407 acres. Probably not more than 66% of this acreage, or 24,688 acres can be classed as pine. All this eradication work has been confined to Litchfield county, as 98% of the pine outside this section is naturally protected from blister rust due to scarcity of wild Ribes. It is estimated 75,000 acres of the total amount of pine land is in Litchfield county. Therefore, there still remains about 50,000 acres of pine in need of protection, or an area of over 75,000 acres which will have to be covered, allowing one third additional acreage for protection strips. To complete the control program it will take three years, if 25,000 acres are worked each year, but to accomplish this it will be necessary to cover 1.78 times as much acreage each year as worked in 1923. The results of the control program are summarized in the following tables:

Summary of Individual and Town Cooperation in Blister Rust Control Work in Connecticut - Period 1917-1923.

Table # 41

Year	No. Individ. Coop.	% of Total	Amt. Subscribed by Individ. Coop.	% of Total	No. Towns Approp.	% of Total	No Towns Worked	Amt. Approp. by Towns	% of Total
1917	-	-	-	-	-	-	-	-	-
1918	-	-	-	-	-	-	-	-	-
1919	-	-	-	-	-	-	-	-	-
1920	-	-	-	-	-	-	-	-	-
1921	-	-	-	-	-	-	-	-	-
1922	2		\$187.50		2	66.6	3	\$2300.	82.1
1923	9		867.45		1	33.3	3	500.	17.9
Total	11		1054.95		3	100.0	6	2800.	100.0

Summary of Cooperative Ribes Eradication Work in Connecticut
Period 1917-1923.

Table #42-

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	3,700	-	?	\$3145.00	.85	?
1918	800	-	10000	Private funds	?	12.5
1919	2,500	-	31000	2323.34	.93	12.40
1920	2,170	2	42793	1974.70	.91	19.72
1921	8,000	6	41470	2664.07	.33	5.18
1922	6,175	-	137501	4651.50	.753	22.2
1923	14,062	248+	288333	6863.14	.488	20.5
Totals	37,407	256+	551097	21621.75	*590	16.3 **

No wild Ribes figures available for 1917.
 No cost figure available for 1918

Note: * Acreage for 1918 omitted in obtaining per acre cost figure. ** Acreage for 1917 omitted in obtaining per acre Ribes figure.

During the past two years extensive and intensive scouting throughout the state has shown there is very little infection outside Litchfield county where the rust is general on Ribes and pine, but not severe except in small patches of young pine. In the remainder of the state the disease is confined almost entirely to a few scattered primary pine infections located in plantations. Apparently the rust is not spreading from these sources due to scarcity of wild Ribes. To date the pine infection has been located in 25 Connecticut towns.

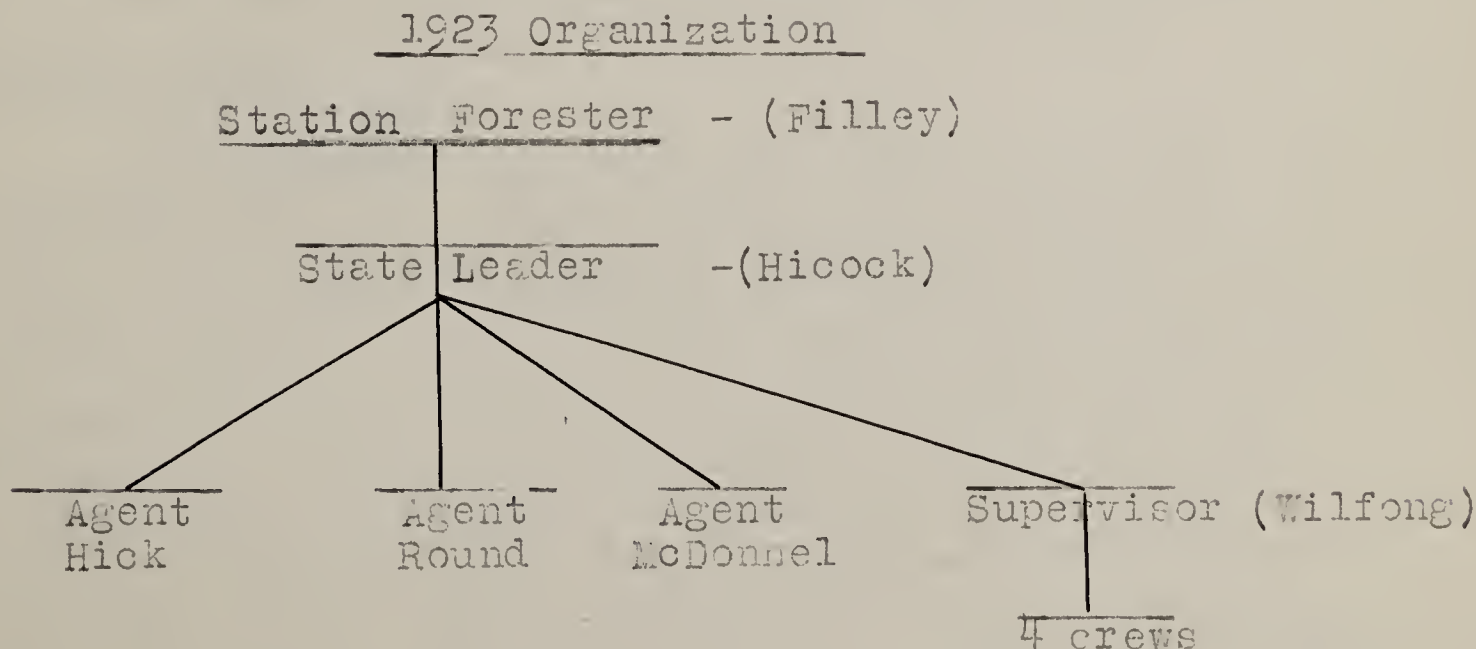
In Litchfield county, the eradication work has been conducted chiefly according to crew methods, no preliminary Ribes scouts being used. However, all areas worked by the

crews were scouted in a general way in advance to determine pine and Ribes conditions, and the crews were assigned to definite blocks. As the bulk of the eradication work is conducted in cooperation with towns, state crews were used almost entirely, and state foremen supervised most of the control work done by individuals. The state maintained two camps at which outside labor received board and lodging. The local help lived at home.

Organization.

The blister rust organization in Connecticut since 1922 has consisted of three agents, theoretically working under the direction of the state leader who is responsible to the forester at the Connecticut Agricultural Experiment station with whom the Bureau of Plant Industry cooperates. The experiment station and the Bureau of Plant Industry also cooperate with the state extension service through its director. The agents have been assigned to a definite territory but are not headquartered at any of the county extension service offices. Outside of Litchfield county the agents have confined their effort chiefly to scouting and general educational work, while in Litchfield the agent has limited his work to an educational program with the object in view of getting individual and town cooperation in Ribes eradication. The bulk of the eradication work has been supervised by Hicock or Wilfong, rather than the local agent. By special arrangement Hicock has also been used on work other than blister rust control. Filley rather than Hicock has given direct supervision to the work of the agents outside of Litchfield county. The organization was somewhat crippled during the year by Hicock being on sick leave for several months and Agent Round, an exceptionally capable man, leaving the work during the height of the eradication season.

The following chart shows the Connecticut Blister Rust organization in detail.



Results Accomplished During 1923 in Connecticut Cooperative Control Work.

During 1923, six pine owners cleared 511 acres of wild Ribes and 16 owners destroyed their cultivated bushes without any state supervision, while two individuals co-operated with the state in eradicating 15,304 Ribes from 1101 acres at a per acre cost of 99.1 cents. These co-operators expended a total of \$867.45 on this control work, while the state paid \$357.53 or 43.5% as much as the individuals. In addition, cooperative work was carried on in three towns: Salisbury, North Canaan, and Cornwall. In these towns the state expended a total of \$5140.17. However, only one town, North Canaan, spent any town money (\$497.99.) In other words, during 1923 the state paid 932% more money than the towns on this cooperative control work. *However, after the close of the season, two towns paid over to the state \$392.17 for erad. work.* In Cornwall during 1922, the town paid more money than the state, while during 1924 the town of Salisbury will expend an amount equal to that paid by the state during 1923. The cooperative state and town money used in 1923 cleared 12,450 acres of 270,929 wild Ribes at a per acre cost of 45 cents. In this work the Ribes numbered 22 per acre. A grand total of 14062 acres were covered at a per acre cost of 49 cents, or an increase in acreage over 1922 of 125%. The cost was reduced from 75¢ in 1922 to 49¢ in 1923. About 250 cultivated bushes were destroyed, but no compensation was paid. A total of 22,147 acres were eliminated as non-pine land. No crew checks were made during the season, and only one hour of checking was done by the agents. During the season 32 men were employed on eradication work, which was confined to Hitchfield county except for one small job of ten acres.

Educational Work.

Three agents were employed during the year, but one resigned July 31. These agents gave talks at 15 meetings in 13 towns, attended by 367 people, placed 13 exhibits in 13 towns, distributed 1281 publications in 103 towns, published 66 news items reaching 99 towns, and placed 56 posters in 8 towns. A total of 444 initial interviews and 187 follow up calls resulted in promised cooperation as follows: 25 wild Ribes eradication, 22 cultivated Ribes eradication and 278 gave moral support. In addition, demonstrations of the disease were given to 31 individuals and 10 such group demonstrations reached 301 persons. Also, demonstrations of eradication methods were made to 24 individuals and three such group demonstrations

were attended by 29 people. The bulk of this educational work was confined to Litchfield county. During the year the agents visited 98 out of the 169 towns in their districts.

Expenditures.

During the year 1923, a total of \$17,726.74 was spent on control work in Connecticut, \$10,763.32 being expended by the state and its cooperators and \$6863.42 by the Government. The \$17626.74 state and federal money was expended by projects in the following proportion: eradication 38.9%, education 3.11%, miscellaneous 15.7%, supervision 13.8%, and field data .2%. A total of \$6863.14 was spent on eradication work, individuals paying 12.6%, towns 7.2%, and the state 80.1%. Basing the cost per acre in Connecticut on the total amount of funds spent during 1923 for all projects gives a per acre cost of \$1.25 or an increase of 155% over the eradication cost of 49¢ per acre. Expenditures under the project Miscellaneous amounted to \$2781.59 or 29.5% of the entire state appropriation. Under this item two new cars were purchased at a cost of \$1900, and repairs on the government truck amounted to \$200. Automobile maintenance, camp equipment, etc., made up the balance. For the remainder of the fiscal year (January 1 - June 30, 1924) there is a state balance of \$942.50 and \$775 town money, or a total of \$1717.50. The federal balance is \$5979.70. Hicock makes the following estimate of funds for the next fiscal year beginning July 1, 1924: state appropriation \$7500, town funds \$2000, and individual money \$500, or a total of \$10,000.

Commendations.

The most encouraging phase of ^{the} work in Connecticut since the new program was developed is the co-operation obtained with individuals and towns. No co-operation had been secured prior to 1922 except a couple of small jobs. The general educational work in blister rust control during the past two years is also a great improvement over anything previously accomplished along this line. It is also gratifying to note that the disease is not making much headway in this state due to natural conditions and prompt application of control measures where needed.

The table below gives a comparison of results accomplished before and after the adoption of the new eight year control program.

Comparison of Results in Cooperative Blister Rust Control Work in Connecticut Between Periods 1917-1921 and 1922-1923.

Table # 43³

Period	Total Acreage	Total Ribes		Total Cost	Cost per Acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. pd. by Indiv. Coop.
		Wild	Cult.						
1917-1921	17,170	*	8	**	.617	-	-	-	-
1922-1923	20,237	425,834	248	11514.64	.569	3	\$2800.	11	\$1054.95
Total	37,407	551,097	256	21621.75	.590	3	2800.	11	1054.95
% Total Worked 1922-1923	54.1		96.8						

* No wild Ribes figure available for 1917.

** No cost figure available for 1918.

Acreage for 1918 omitted in obtaining per acre cost figure for period 1917-1921 and cost figure for totals.

The next table shows the increase in amount of control work performed in 1923 over 1922 and the decrease in the cost per acre.

Comparison of Results in Cooperative Blister Rust Control Work in Connecticut Between 1922 and 1923.

Table # 44

Year	Total Acreage	Total Ribes		Total Cost	Cost per Acre	No. Coop. Towns	Amt. Town Money Approp.	No. Individ. Coop.	Amt. paid by Individ. Coop.
		Wild.	Cult.						
1922	6,175	137,501	-	4651.50	.753	2	\$2300.	2	187.50
1923	14,062	288,333	248	6863.14	.488	1	500.	9	867.45
% Increase or Decrease	+127.7	+109.7	+100	+47.5	-35.2	-50	-78.2	+350.0	+363.6

Weaknesses in the Control Work - Connecticut.

1. The greatest weakness in Connecticut is poor leadership, which influences the entire work. Not very much progress can be made in Connecticut as long as it has a leader who is in poor health; who lets personal and petty feelings dominate him and who has none of the initial qualities of leadership.
2. Eradication work is not well organized, too much overhead in camps, trucks, and supervisors. Anti-quoted methods of eradication are still used, men do not use paper trail, no preliminary scouts used to locate Ribes and eliminate non-Ribes areas, practically no checking, too much rope given to foremen, excess loss motion in establishing and running camps, work lacks punch, men take satisfied attitude and apparantly regard the work as a "state job."
3. Lack of a definite policy and plan of work for the state and each district is a severe handicapp. As a result, the work, as a whole, is poorly organized and the agents have not planned their work most effectively in their districts. There has been too much hit or miss work without definite results.
4. Blister rust situation outside of Litchfield county does not justify keeping any agents on the work. Control work is only needed in Litchfield county.
5. Very little contact between the agents and their leaders.
6. Inadequate cooperation with the extension forces, due more or less to conditions. However, a great deal of valuable publicity work could have been carried on by full utilization of the facilities offered by the extension forces, also closer contact would have helped pave the way for extension forestry. As a whole, extension methods in blister rust work would have been of little use outside of Litchfield county, and even here the value of local Blister Rust leaders is doubtful.
7. Blister rust publicity has not been well organized, nor has there been enough of the right kind.

8. Hick has ability, but apparantly is not especially interested in his work. McDonnell is young and has had no forestry training.

9. Lack of sufficient federal contact in Connecticut.

10. Lack of contact between the state forester and the state and federal Blister Rust leaders. No definite policy as regards blister rust control on state lands. (So far most of the state lands contain only deciduous trees.)

Plans for Developing Work During 1924.

1. Place all the work outside of Litchfield county on an extension forestry basis at the earliest possible date. First, a definite policy and plan of work will be developed between the state extension forces, the state forester, the station forester, and the Bureau of Plant Industry. All facilities offered by the cooperators will be used in developing this work. The best possible prospect, agreeable to all cooperating parties, will be employed as a forestry extension specialist. His job will be to organize and develop the farm forestry program. The Bureau of Plant Industry will pay part of his salary for time spent on blister rust work, which should be one of his major projects. In addition, one or two county extension foresters will be employed, the Bureau of Plant Industry paying part of their salaries for time spent on blister rust. One permanent blister rust agent will be employed for the next three years in order to complete the control project in Litchfield county. He will work under the direction of the station forester, who will be appointed State Blister Rust Leader and receive a federal salary for time spent on blister rust work. The agent will be responsible for all Blister Rust educational and eradication work in Litchfield county. No eradication supervisor need be employed as this work can be done by the agent. If necessary Hicock, acting entirely as a state man, can assist or supervise the eradication work.

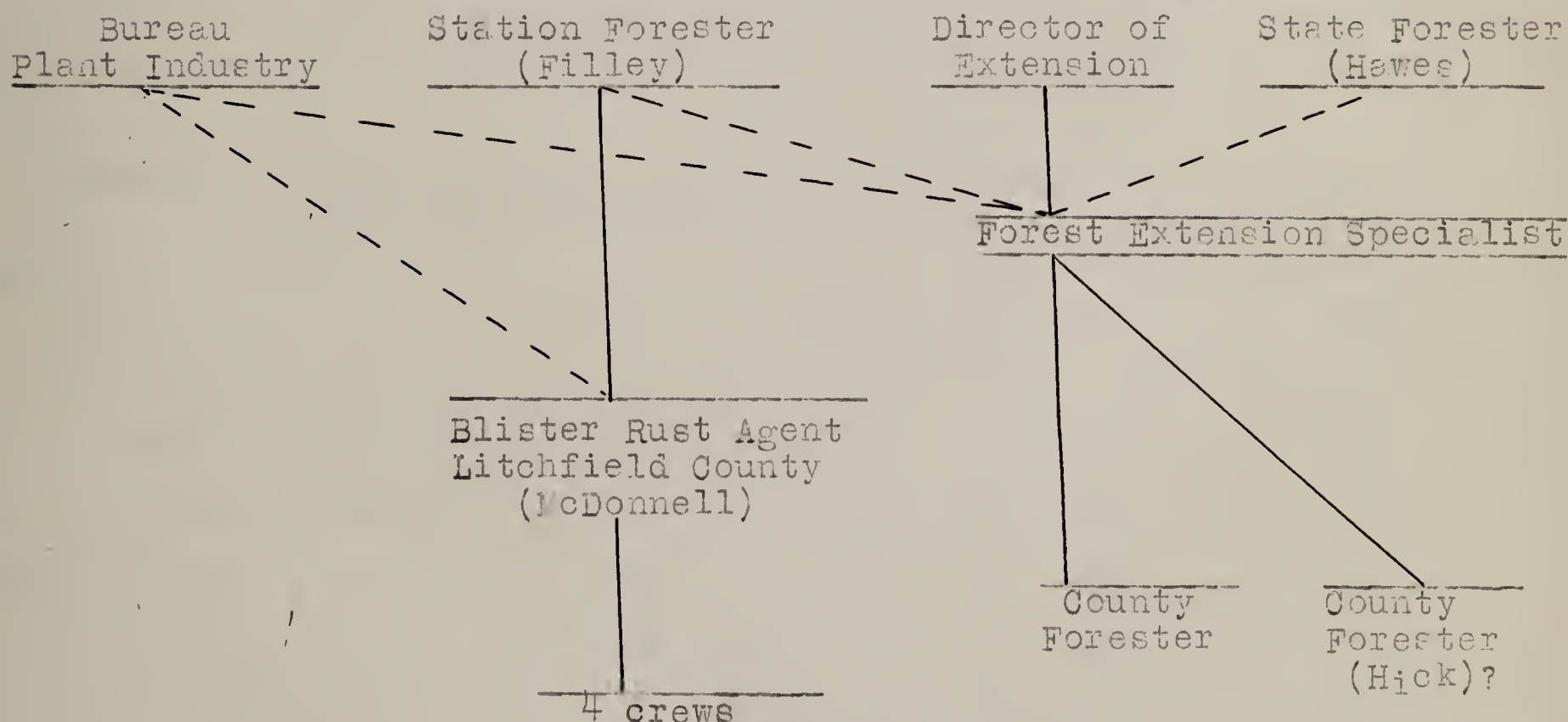
Every effort will be made to obtain greater and better results in Ribes eradication by:

1. Getting a greater volume of town and individual cooperation.
2. Eliminating as far as practicable state camps by boarding and lodging the men at farm houses.
3. Using scouts to eliminate the non-Ribes areas in a definite way.
4. Using the paper trail.
5. Performing adequate checking.
6. Overcoming lost motion
7. Continuing the use of state foremen to supervise all work.

The appointment of Mr. Filley as state leader and the use of a forest extension specialist will result in closer field contact between the agents and their leaders, also the appointment of a federal Blister Rust specialist for southern New England will produce more federal contact. The federal supervisor in charge will also spend more time in Connecticut. Definite plans will be made covering all phases of the work, and the federal specialist will aid in organizing and developing the work where ever it needs attention.

The state and federal Blister rust leaders will develop closer contact with the state forester, (Hawes) so as to keep him interested in blister rust control work. Also, the leaders will urge that a definite state policy be developed covering Blister Rust control work on state lands and on private white pine plantations.

Recommended 1924 Connecticut Blister Rust Organization



Statement of Blister Rust Control Funds in Connecticut.

Table # 45

Source of funds	Period Jan. 1, 1924-June 30, 1924 Amount	Period July 1, 1924-June 30, 1925. Amount
State Appropriation	\$942.50	\$7500.00
Nursery Inspection	-	-
Town Appropriation	775.00	2000.00
Other local funds	-	500.00
Total State coop. funds	1717.50	10000.00
Federal funds al- lotted	5979.70	7500.00

Estimated Federal Expenditures in Connecticut
Period January 1 - June 30, 1924.

Table # 46

Name	Period	Rate per mo.	Total Salary	Total Expenses	Grand Total
Filley	April 1-June 30	\$1.25.	\$375.	\$225.	\$600.
Hicock	Jan. 1-March 31	1.45.	435.	-	435.
McDonnell	Jan. 1- June 30	1.25.	750.	600.	1350.
Hick	" "	1.25	750.	600.	1350.
Total			\$2410.	\$1425.	\$3735.

Balance of \$2244.70, part of which can be released for other work.

Estimated Federal Expenditures in Connecticut
Period July 1, 1924 - June 30, 1925.
 (Based on Proposed Plan of Work.)

Table # 47

Name	Period		Rate per mo.	Total Salary	Total Expenses	Grand Total
	1924	1925				
Filley	July 1 -	June 30	\$145.83	\$1750.	\$100.	\$1850.
McDonnell	"	"	135.00	1620.	1200.	2820.
Extension Forester *	"	"	100.00	1200.	1200.	2400.
County Forester *	"	"	75.00	900.	---	900.
Totals				\$5470.	\$2500.	\$7970.

*One half of salary paid from federal blister rust control funds.

Estimated Federal Expenditures in Connecticut
Period July 1, 1924-June 30, 1925.

(Based on employment of three Blister Rust Control Agents)

Table # 48

Name	Period		Rate per Month	Total Salary	Total Expenses	Grand Total
	1924	1925				
Filley	July 1 -	June 30	\$145.83	\$ 1750.	\$ 100.	\$ 1850.
McDonnell	"	"	135.00	1620.	1000.	2620.
Hick	"	"	135.00	1620.	1000.	2620.
--	"	"	125.00	1500.	1000.	2500.
Totals				\$6490.	\$3100.	\$9590.

NEW YORKStatus of Work.

New York has 1,500,000 acres of white pine according to an estimate made by the state forestry department, but nevertheless is importing 93% of the white lumber it uses. In 1919 the wood using industries in New York that used white pine consumed 346,621,000 board feet. A white pine survey is now being made in Essex and Warren counties but none of the statistics or maps are available for use of the agents at this time. This survey is very detailed and the cost per acre for the map work has been excessively high. The mapping has been carried on intermittently for three years. The bulk of the white pine is located in the eastern part of the state in Essex and Warren counties and in the counties immediately surrounding these two districts. The results of the pine survey to date indicate there is probably less than one million acres of pine rather than one and one half million.

During the period 1917 to 1922 inclusive, a total of 209,444 acres were cleared of Ribes at a cost of 1.16¢ per acre. In 1923, an additional 15,459^{acres} were worked or a grand total for all years of 224,903 acres. Allowing one third of this acreage for protection strips not more than 148,436 acres of pine have been protected. Therefore, there remains 1,351,564 acres in need of protection, or a total of 2,027,346 acres that must be covered. To work this area in the remaining six years of the eight year program, 337,891 acres must be cleared of Ribes each year, or an equivalent of 21.8 times the amount eradicated in 1923. These figures are based on the 1½ million acre estimate of pine rather than the million acre figure. New York has a real job on its hands, but with a large state appropriation and ten to twelve permanent agents in addition to a large organization for state land work, it has an easier task than either Maine or New Hampshire as far as number of acres are concerned. However, the Ribes are more abundant and larger in size and the topography rougher as a whole than in New England so that the eradication work will be much more difficult and costly. New York also has about two million acres of state land, several thousand acres of which is growing up to white pine. The results of the control program in New ~~Hampshire~~^{York} are summarized in the following two tables.

Summary of Cooperative Ribes Eradication Work in
New York During the Period 1917 to 1923.

Table 49

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	130,352	20,570	120,762	\$38,780.80	.29	.92
1918	29,337	11,000	904,153	43,679.16	1.46	30.81
1919	23,194	2,675	2181,286	79,689.08	3.43	94.04
1920	7,057	47	695,833	24,399.18	3.46	98.60
1921	8,474	14	730,573	22,576.33	2.66	86.31
1922	11,030	0	654,231	34,082.42	3.09	59.3
1923	15,459	367	906,617	44,229.78	2.87	57.3
Totals	224,903	34,673	6193,455	287,436.75	1.278	27.5

Summary of Individual Cooperation in Blister Rust Control Work
in New York - Period 1917-1923.

Table 50

Year	No. Indiv. Coop.	% of Total	Amt. Subscribed by Individuals	% of Total
1917	-	-	-	-
1918	2	1.5	\$4,772.50	15.2
1919	5	3.7	8,061.91	22.5
1920	11	8.1	2,492.94	8.0
1921	23	16.9	3,330.99	10.6
1922	38	27.9	3,219.90	10.3
1923	57	41.9	9,548.63	30.4
Totals	136	100.0	31,426.87	100.0

New York has the most difficult task in eradicating Ribes of any state in the East. Large Ribes rotundifolium and cynosbati are generally distributed over the greater part of the main pine areas. There is also an abundance of skunk currants in the lowlands and on the rocky ledges. In such areas crew methods must be used over most of the territory. However, in the outskirts of the pine section as in Lewis county, large areas are comparatively free from wild bushes. Here scouting methods could be employed to advantage. In the areas where Ribes are abundant, selective eradication is about the only solution to the problem. That is, where the amount of pine does not justify the cost of protection no eradication work should be done. However, in deciding this, one must also consider that most of the land is only fit for growing a timber crop, preferably white pine, also these forests have an exceptionally high scenic value.

Due to the abundance of Ribes and the humid cool conditions of the hilly country, pine infection is more severe than in any other state. It has been conservatively estimated by several persons that at least one third of the pine over thousands of acres are diseased. The majority of the infections have occurred since 1918, and are just beginning to show up in an alarming manner. In 1922, a road side strip survey from Warrensburg to Potterville showed that 21% of the pine were diseased. This was in an area that, as a whole, showed little evidence of the damage. The disease has apparently spread from several plantations of imported pine made in Essex and Warren counties.

Practically all Ribes eradication work has been confined to state lands. Two large state camps have been maintained each year and from 30-50 ^{crews} employed. Crew methods have been used entirely on state land work.

Up until 1922, any private cooperation had been mostly with a few of the Lake Associations. However in 1922, as a direct result of the educational work of the agents, 38 individuals paid for the control work on their lands at a cost of \$3,219.90. In 1923, 57 cooperators paid for the eradication work on 10,025 acres. All this private work was supervised by state foremen furnished free to the owners. No scouts have been employed except one last summer for a time in Lewis county. No town appropriations have ever been solicited.

Organization.

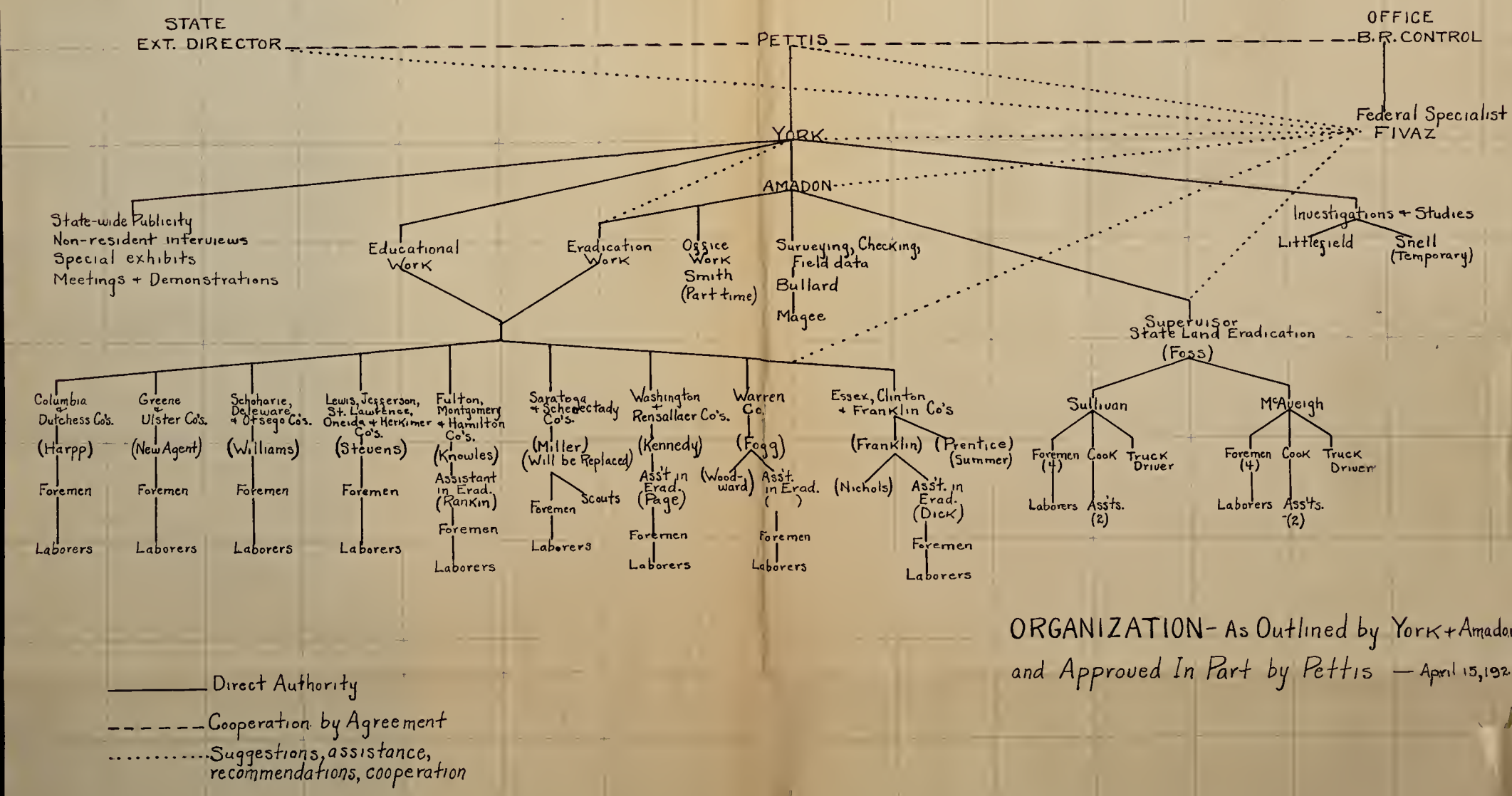
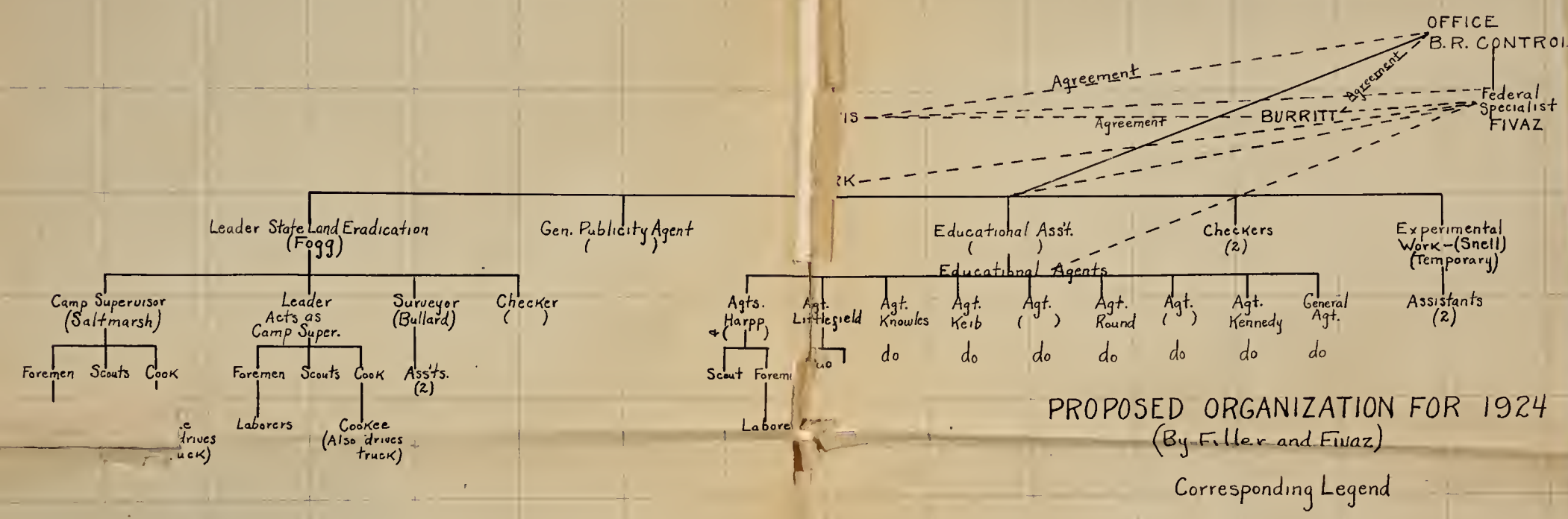
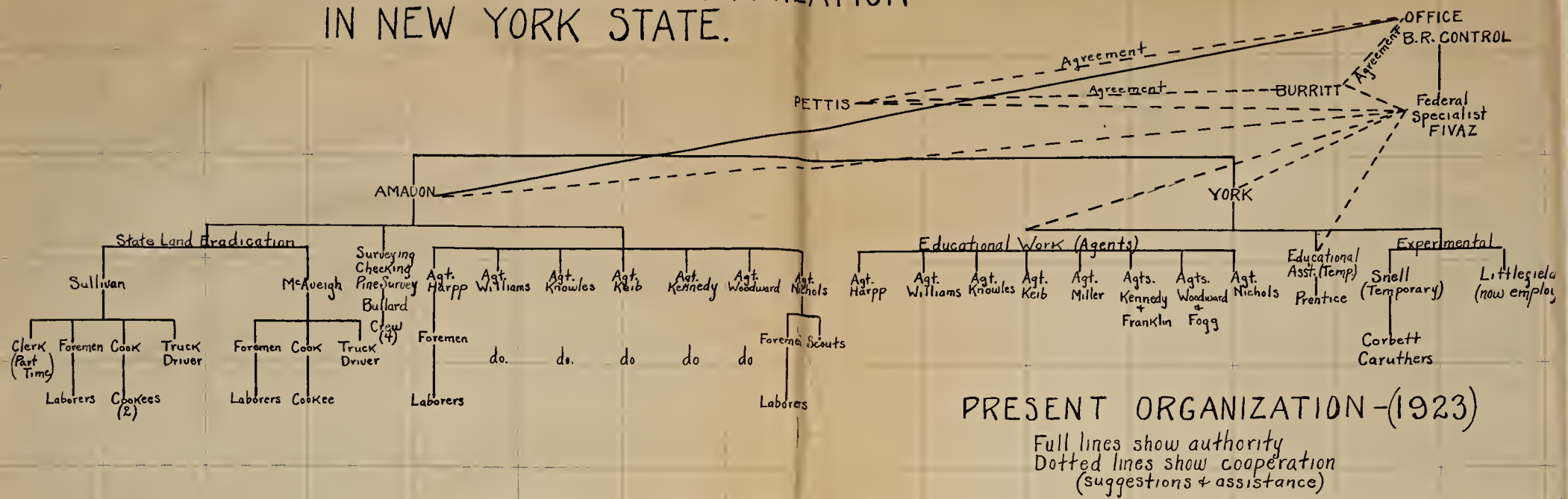
The New York organization is a complicated one. The work can best be divided into two classes, state land work and private work. Up to July 1923, all the blister rust control work had been supervised by a state leader, who is directly responsible to the state superintendent of the New York State Conservation Commission with whom the Bureau of Plant Industry cooperates. The Bureau and the Conservation Commission also cooperate in the educational phase of the control program with the state extension service, through its state director. The state leader up to July 1, 1923 supervised the control work on the state lands and the work of the 8-12 permanent district blister rust control agents. The state land organization consists of two supervisors, each in charge of state camps composed of from 8-25 foremen and from 40-125 laborers, camp cooks, truck men, etc. In addition the state leader supervised the work of any state checkers or men employed on pine survey. Only about a half dozen men of the state land organization are retained during the winter. During the period March to July, the federal specialist materially assisted the state leader in supervising the work of the district agents.

Since July 1, all the educational work in blister rust control, conducted by the blister rust agents, has been supervised by the state forest pathologist who is paid entirely from state funds. The state leader since then has confined his work to supervising the Ribes eradication work on both state and private lands. In other words, the state leader has charge of the entire work on state lands, but on private lands he supervises only that part of the district agent's duties which are classified as eradication. He also continues to supervise the state checkers and the pine survey work. The state leader and state forest pathologist both work under the direction of the state superintendent of forests, both men are on equal footing as far as authority is concerned, neither having authority over the other.

Each agent has been assigned to a definite district and is responsible for all blister rust control work in his territory. Some of the agents have an assistant who will be used, during the summer months, largely to supervise the crews on cooperative work with individuals. The following chart shows the organization in detail.

BLISTER RUST CONTROL ORGANIZATION IN NEW YORK STATE.

103 a



Results Accomplished in Blister Rust Control During 1923.

Educational Work.

During 1923 the blister rust educational program in New York was carried on in eight districts by eleven agents, however not over nine were employed at any one time. These agents attended 155 meetings in 114 towns; a total of 5537 persons being present; placed 107 exhibits; distributed 9,221 publications in 280 towns; published 260 news items reaching 672 towns; and placed 1,795 posters in 199 towns. The intensive educational work resulted in 1,021 initial interviews and 610 follow-up calls, 262 persons promised to eradicate wild Ribes on their properties, 35 to destroy the cultivated bushes, and 179 people promised moral support. In addition, demonstrations of the blister rust damage were given to 157 individuals and 78 such group meetings were attended by 486 persons. Eradication methods were shown to 80 individuals and at 42 such group demonstrations 250 people were present. During the summer months a special agent (Prentice) was used in general educational work, and in helping to start a local leader project in Essex County.

Ribes Eradication on Private Lands

The educational work of the eight district blister rust control agents resulted in the greatest amount of individual cooperation ever obtained in New York. A total of 57 persons cooperated in eradicating 400,665 wild Ribes from 10,025 acres at a per acre cost of \$1.54. The bushes averaged forty per acre. The state furnished foremen to supervise this control work at a cost of \$5934.64, while the individuals expended \$9548.63 for the hire of the laborers. (Ninety men were employed during the season on this private cooperation work.) A total of 348 cultivated Ribes were also destroyed, 300 of these bushes being pulled in two districts. Nine persons were paid \$34.65 compensation for the loss of 124 bushes. No unsupervised eradication work was performed. The state figures show eight agents made a total of 59 checks on the eradication work, but the remainder of the check data is in such poor shape it is of no value in getting total figures. Up to February 1, the agents had secured over 12,000 acres of promised cooperation for 1924.

SUMMARY OF RIBES ERADICATION WORK ON STATE LAND IN NEW YORK DURING 1923.

*To be reviewed
according to latest
figures submitted
by State Re-forester*

Name of Area	Name of Supervisor	Total Acreage Worked	Total Ribes Killed	Total Cost	Total Cost per Acre	No. Ribes per Acre	Total Cost of Supervision	Total No. Crew Man Days Spent in Project	Total Cost of Food at Camps	Cost of Food per Man Day	Total Expenditures for Crew Wages	Ave. Rate Wages per Crew Man Day	Ave. Rate Wages & Food per Crew Man Day	Division of Time by Kinds of Work *			Total Cost of Misc. Work and Lost Time Due To Rain	Per Day Rate For Crew Man Based on Time Actually Spent on Trad.	Cost of Auto Up-keep and Livery	Other Misc. Expenses
														Man Days in Eradication Work	Man Days Lost Due To Rain	Man Days Worked on Misc.				
Paradox Lake	McAveigh	2,101	172,542	\$12,023.35	5.72	82.1	\$418.54	2195	\$5,089.50	\$2.31	\$6,043.63	\$2.75	\$5.06	1696	54 ¹	444 ¹	\$1,498.84	\$6.55	\$371.01	\$108.69
Sharps Clearing	"	231	3,877	1,464.76	6.34	16.7	81.30	295 ¹	448.81	1.51	854.56	2.88	4.39	197	5 ¹	94	304.40	6.61	69.04	11.04
North Hudson	Sullivan	2,052	292,943	13,450.04	6.55	142.7	564.16	2963 ¹	3,905.63	1.31	8,470.00	2.85	4.16	2306	93	564 ¹	1,984.32	5.36	357.22	153.03
TOTALS STATE CAMPS		4,384	469,362	26,938.15	6.14	107.0	1,064.00	5455	9,443.94	1.729	15,368.19	2.817	4.546	4199	153	1103	3,787.56	5.906	797.27	272.25
Misc. State Jobs																				
Saratoga Nursery		302	11,661	593.14	1.96	38.6					433.60								159.54	
Misc. State Jobs *1		748	24,948	1,215.22	1.62	33.3					1,031.38								183.84	
GRAND TOTALS		5,434	505,971	28,746.51	5.29	93.1					16,833.17								1,140.65	

*Important Column

*1--Small state land jobs in six of the eight agent's districts. No camps maintained. *2--Total cost does not include the purchase of two Ford cars for supervisors. *3--The average cost per acre in the different jobs varied from 33¢ to \$3.03 and the Ribes from 1.2 to 100.5 bushes per acre. In district I it cost 85¢ per acre to destroy 1.2 bushes per acre; in district II, 17.8 bushes per acre were eradicated for 33¢; and in district 7, it cost \$3.03 to destroy 100.5 bushes per acre.

EXPLANATIONS: There was no food waste at the end of the season, as the left over food was taken to the state reforestation camp. The state also paid \$1,881.00 for the board of federal men working at the North Hudson Demonstration Area. This item and any other outside expense were kept entirely separate from eradication costs as given in the above table. Crew man days includes time of all men employed on state land work except supervisor.

To be reviewed
according to
latest figures
submitted by
State Auditor

Analysis of Summary of Ribes Eradication Work on State Owned Land
in New York during 1923.

1. During 1923 Ribes were cleared from 5434 acres of state owned land, 80.6 percent of this work being performed under the direction of McAveigh and Sullivan at Paradox Lake, Sharps Clearing, and North Hudson, where state camps were maintained. The other jobs consisted of protection work around state nurseries or plantations in six of the eight districts supervised by blister rust control agents.

2. The eradication work supervised by Sullivan and McAveigh cost \$6.14 per acre for destroying 107 Ribes per acre. At Sharps Clearing it cost \$6.34 per acre to eradicate only 16.7 bushes per acre, and at North Hudson the per acre cost was \$6.55 for pulling 142.7 bushes. (Note for comparison, in 1923 a camp was supervised by a blister rust control agent without any experience, and land rougher than the average state land was cleared of Ribes for \$3.67 per acre. This was on the Knapp Estate. During 1923 a total of 10,025 acres of private land belonging to 57 cooperators was eradicated of Ribes, under the direction of the blister rust control agents, at a per acre cost of \$1.54 or \$4.60 per acre less than the cost of the eradication work supervised by Sullivan and McAveigh.)

3. The cost of food per man day at Sullivan's and McAveigh's camps ranged from \$1.31 to \$2.31 or an average of \$1.73 per man working day. The food at these camps cost \$9435.44. In comparison, in various parts of the Adirondacks board and lodging of far higher grade is procurable at \$10.00 per week or \$1.43 per calendar day. Tent camps are being operated in the Adirondacks for less than \$1.00 per calendar man day.

4. The average rate of wages per crew man day (foremen and laborers) ranged from \$2.75 - \$2.83, or an average of \$2.82 per day. However, when the cost of board is added to the daily wages, each crew man was paid an equivalent of \$4.55 per day. In McAveigh's camp the wages and board amounted to \$5.06 per man day. This rate is between one and two dollars higher than that paid in any other state.

5. Due to the maintenance of large camps and poor supervision 20.2% of the entire crew mens' time was spent on miscellaneous work, other than Ribes eradication. An

additional 2.8% of the total time was unavoidably lost due to rain. Therefore, basing the cost per day per crew man on the time spent on the Ribes Eradication project gives a cost of \$5.90 per man day. At McAveigh's Camp this average rate was \$6.55.

6. Fivaz's report on a special crew study made at North Hudson shows that an average state crew working in a normal way on the federal demonstration area for a period of 27 working days, entirely on the project Ribes eradication, actually spent only 69% of each eight hour day on eradication work (pulling bushes.) Lost time was as follows: 21% going to and from work, 6% resting during the day, 2% excess nooning, 1% car trouble and Miscellaneous. (An additional 11% was unavoidably lost due to rain and this is not included in the 69%.) If this same amount of lost time on eradication work prevailed in the other crews, it cost the state \$7.73 per average man day for time actually spent on eradication work, rather than an average of \$5.90 as indicated above.

7. In addition to the purchase price of two Ford cars for the supervisors, it cost \$797.27 for auto upkeep and livery and \$277.76 for Miscellaneous items at the Paradox Lake, North Hudson and Sharps Clearing jobs.

8. The excessive high costs are due primarily to poor supervision. Close supervision of the right sort would cut down the food cost, decrease Miscellaneous work to a minimum, correct the weaknesses in the eradication procedure and produce the desired results from the personnel.

During 1923, on state and private lands in New York, a grand total of 906,617 Ribes were destroyed on 15,459 acres at a cost of \$44,229.78 or \$2.87 per acre. The Ribes averaged 57.3 bushes per acre.

Analysis of Blister Rust Control Expenditures in New York during 1923.

During the calendar year 1923, a total of \$92,479.80 was expended on control work in New York, the cooperating pine owners paying \$9548.63, the Government \$25,135.41, and the state \$57,795.76. This total \$92,479.80 was spent according to projects in the following proportion: Ribes eradication 47.7%, education 29.7%, pine survey 6.2%, supervision (York and Amadon) 6.2%, Miscellaneous 5.4%, and field

data 4.6%, and Ribes compensation .03%. A total of \$44,229.78 was spent on Ribes eradication on public and private land, the state paying \$34,681.15 or 78% of the costs, while the individual pine owners expended a total of \$9548.43 or 21.6%. The total expenditures on private land were \$15,483.27, the cooperating pine owners paying 61%, and the state \$5934.64 or 38.3% of the total cost. The state expenditures for all Ribes eradication in New York amounted to 65.7% of the entire state appropriation, but the amount of state funds used on cooperative control work with pine owners amounted to only 11.8% of entire state appropriation.

During 1923, on public and private lands, a grand total of 906,617 Ribes were destroyed on 15,459 acres at a cost of \$44,229.78, the per acre cost on state land being \$5.29 and on private land \$1.54 or an average of \$2.87. The Ribes per acre averaged 57.3 bushes. On the basis of total expenditures for all cooperative control work in New York during 1923, the average per acre cost was \$5.98.

Applying this analysis to the cooperative control work it is evident that their present program of work is unbalanced. Over a third of the state appropriation is being used on projects other than Ribes eradication, 26% being expended under projects field data and Miscellaneous. Too large a proportion of state funds are used on Ribes eradication work on public lands, and altogether too little on helping cooperating pine owners. A sum at least equivalent to the federal expenditures should be used by the state in assisting pine owners to protect their stands. This could well be done since, according to Amadon, the initial Ribes eradication has been completed in the greater part of the state owned pine land. The proportionate part paid by the state for eradication work on any one individual's land need not be increased, but additional cooperators are needed as the state can expend a greater amount of funds on private lands.

Commendations of 1923 Work in New York by Fivaz and Filler.

New York has stepped into the lead in general publicity work, through the development of new ideas. The Roadside demonstration is probably the outstanding feature of the year's accomplishments, many having been placed in Warren and Essex Counties. Some direct results have been obtained but the indirect benefits should be most valuable. Other means of publicity have been used, some of the new ideas being gooseberry race, gooseberry leaf guessing contest, novel exhibit pieces as the Essex County blister rust map, besides a motion picture show tour through the state, the holding of numerous other meetings, and the placing of exhibits at fairs and picnics. There was also a great increase in news items published since last year.

There has been praiseworthy development in the Agent personnel during the year. Three of the original agents have been replaced, Magee, Franklin, and Wigsten, by Knowles, Kennedy, and Keib. Also, two additional agents were appointed, Miller and Fogg. Besides the added weight of the new men, the increased weight of two of the original agents, Harp and Williams is noteworthy. On the state payroll, the personnel has been bettered by the addition of several trained foresters, Littlefield, Foss, Rankin, and Fifield. Littlefield is working on experiments, Foss and Rankin on pine survey, and Fifield has been released to a state nursery.

The Blister Rust Control agents have been able to do better and more work because of their contact with the state leaders at the several agents schools or meetings held during the year.

The state, with federal cooperation, has made some good damage studies of areas most used for field demonstration, giving such demonstrations the added weight of definite damage figures.

The major development of the year was the securing of an educational leader of York's type. He has put many of his ideas to work for the betterment of the educational program in the state and the large part of the years development can be credited to him.

The two following tables show a comparison between the results accomplished before and after the eight year program went into effect.

Comparison of Results in Cooperative Blister Rust Control Work
in New York Between Periods 1917-1921 and 1922-1923.

Table #51

Period	Total Acreage	Total Ribes		Total Cost	Cost per Acre	No. Coop. Towns	Amt. Town Money	No. Indiv. Coop.	Amt. Pd. by Indiv. Coop.
		Wild	Cult						
1917-1921	198,414	4,632,607	34,306	\$209124.55	\$1.06	-	-	41	\$18,658.34
1922 & 1923	26,489	1,560,848	367	78312.20	2.96	-	-	95	12,768.53
TOTAL	224,903	6,193,455	34,673	\$287436.75	\$1.28	-	-	136	\$31,426.87
% 1922-1923 to Total	11.8	25.2	1.1	27.2	-	-	-	70.0	40.6

The next table shows the increase in amount of control work performed in 1923 over 1922.

Comparison of Results in Cooperative Blister Rust Control Work
in New York Between 1922 and 1923.

Table #52

Year	Total Acreage	Total Ribes		Total Cost	Cost Per Acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. Pd. by Indiv. Coop.
		Wild	Cult.						
1922	11,030	654,231	-	\$34,082.42	\$3.09	-	-	38	\$3,219.90
1923	15,459	906,617	367	44,229.78	2.87	-	-	57	9,548.63
% Incr. Or Decrease	+ 40.1	+ 36.6	-	+ 29.8	-.8	-	-	+50.0	+196.6

Comparison of Results in Cooperative Blister Rust Control Work
in New York Between Periods 1918-1921 and 1922-1923.

Table #53

Period	Total Acreage	Total Ribes		Total Cost	Cost per Acre	No. Coop. Towns	Amt. Town Money Exp.	No. Indiv. Coop.	Amt. Pd. by Indiv. Coop.
		Wild	Cult.						
1918-1921	68,062	4,511,845	13,736	\$170,343.75	\$2.78	-	-	41	\$18,658.34
1922 & 1923	26,489	1,560,848	367	78,312.20	2.96	-	-	95	12,768.53
TOTALS	94,551	6,072,693	14,103	\$248,655.95	\$2.84	-	-	136	\$31,426.87
% 1922-1923 to total	28.0	25.7	2.6	31.5	-	-	-	70.0	40.6

Weaknesses in New York. *by Firaz + Filler*

I In Eradication Organization.

- (A) Several men are not best fitted for their jobs:-

(a) Amadon, leader in charge of eradication, has shown little progressiveness and weak leadership, as demonstrated by the many weaknesses of the eradication organization as listed below, most of which are evident and many of which have been brought to his attention without resulting in corrective action. Slow progress of New York eradication, as compared with that of other states is not justifiable when the large New York appropriation and resources are considered. Although New York had a state blister rust appropriation three times as large as the highest state appropriation in New England yet it eradicated only 1.7% of the total acreage worked by the seven Northeastern states during 1923. Increase in acreage eradicated in 1923 over that of 1922 is: Maine 77%, Rhode Island 172%, Connecticut 127%, Massachusetts 214%, Vermont 86%, New Hampshire 49%, New York only 42%. Whereas New York has a million and a half acres of pine and at the 1923 rate cannot complete first eradication inside of eighty two years. Less than one sixth of the pine acreage has been protected during the seven years 1917-1923 inclusive even including all acreage worked as pine area. In the past two years he has made no visits to ^{B.R.C.} educational districts, with the exception of Warren and Essex Counties which are unavoidably near the center of his field activities, the state eradication camps. He lacks vision, constructive organizing ability, enthusiasm and pep to make such visits of most value to the agent. He has not been successful as an educational leader. His slackness in regard to details in agents work, and the keeping and paying of men not producing ^{results} value is a serious weakness.

(b) Sullivan, camp supervisor, has shown little progressiveness. He regards with suspicion all attempts to demonstrate or try out improved methods, he is stubbornly self satisfied with present methods. He is uneducated, so ignorant that a man has to be detailed and paid extra to do his light clerical work (writing payrolls, checking B.R. 1's, keeping camp books). He is not the type to produce or develop new ideas which is an essential for a man in such a position. He is over zealous to increase his personal standing locally and place his personal gain ahead of work efficiency, promoting old, ignorant, local cronies ahead of higher type men of longer standing. College men in his camp complain they are given nothing to work for. He is not successful at handling men to produce the best results as

shown by the attitude of practically all subordinates at his camps (1922 and 1923). This year, four foremen of long standing quit him during the season because of personal dislike. Some points indicate that he is not fair and that he may not be trustworthy:-

1. He has been found by surveyor Bullard to have skipped eradicating interior parts of areas while claiming full acreage.
2. He has extended borders to surround ponds in order to claim additional acreage.
3. He has said to Fivaz seriously, "We are going to re-eradicate the Schroon Falls Planting and the hilltop above the cemetery because you fellows keep going in there," giving a distinct impression that good work need be done only where it would be checked, and that the first eradication of these areas would be unsatisfactory to us. These areas, one eradicated first in 1922, the other in 1923, were both re-eradicated in 1923.

He does not welcome checking, does little of it himself and spends too much time in camp, too little actually with the crews in the field. Most of his field work consists of starting crews on new areas and locating and laying out these areas. Because of lack of education and training the planning of winter work for Sullivan is a difficult matter, this winter he has been idle practically since camp was broken, meanwhile drawing full pay. His cost of eradication is highest in the state \$5.08 in 1922.

(c) McAveigh, camp supervisor, is a good camp "boss" but is not capable because of lack of education and training, of doing any more than "bossing". He has not developed, or attempted to develop, eradication methods, he is not capable of experimentation. Because of lack of education and training and because of his age, the planning of winter work for McAveigh is a difficult matter. This winter with the exception of a week spent showing boundaries to surveyors, he has been idle since the breaking of camp, meanwhile drawing full pay.

Note. The cost of state land eradication, for which these three men are responsible, has always been extremely high, much higher than it should be. In 1922 it averaged \$4.49 per acre, in 1923 it jumped to \$5.29 per acre. See discussion of 1923 work under heading in this report "Eradi-

cation work on state lands."

(B) Organization inadequate to needs of private cooperators and to eradicate yearly enough acreage to complete program in six more years.

(a) No scouts available, meanwhile several large areas waited or are waiting upon examination previous to eradication. Griffin Lumber Company with about 2000 acres requested examination and report early in 1923, but to date very little of the lots have been visited and this was all done by agents, whereas had scouts been available, undoubtedly several lots might have been eradicated in 1923. The state, because of lack of scouts, has no proposition to offer the owner of areas where scouting would be the most efficient method of eradication. In most cases the boundaries of eradication areas had to be determined by foremen, were scouts available these would all be marked ahead of eradication.

(b) Number of trained foremen and laborers with foremen possibilities in state is insufficient to handle increased acreage.

(c) No checkers available during eradication season. Bullard and crew designated this past season to this work were kept busy locating, surveying and marking new state land eradication areas.

(d) 21 times the 1923 acreage must be covered during each of the remaining six years of the control program.

(C) Organization inefficient.

(a) Use antequated methods such as flag line and blazed trail, antequated tools, such as Derby hooks. No progress in eradication methods, too much self satisfaction and "matter-of-factness" in work to permit thorough trial of improved methods used in other states.

(b) Waste of money in keeping men over winter, either idle, or in work for which they are not suited.

1. Sullivan 2, McAveigh 3, Roome, a bank clerk retained in place of Fifield, a trained and capable surveyor, on line survey, with the idea of using him on computations after the field work is over. In the meantime, the field work is not benefited much by Roome's presence in crew, and computations are at least two years off according

to Bullard in charge of field work.

(c) Many time, effort, and money inefficiencies.

1. State eradication camps too costly. Average cost per man day, 1921-1922 \$1.15, in 1923 cost for food per man day at the various camps averaged \$1.31, \$1.51, and \$2.31 respectively, while in Warrensbury, 40 miles away, the best of board and lodging pays a profit ~~at~~ \$1.50 a day. Tent camps can be operated on under \$1.00 per man day.

2. Camp supervisors do not "earn their salt".

3. Crews do not work full eight hour day on eradication. (See table of Eradication Hours with 1923 No. Hudson data).

4. Eradication area boundaries not definitely established before eradication, nor always accurately located after eradication.

5. Some areas had to be re-eradicated within a year, this was not held against the foremen in charge of original work which was poor.

6. Surveying and mapping of eradication areas too costly, and detailed beyond necessity (See specialist annual 1923 report Pp. 17-18).

7. See letter and report by Filler to Amadon of July 12, 1923 for further details of inefficiencies.

(d) State Forest Nurseries have not received proper protection. No thorough examination by Amadon since he has been in charge, prior to this year, when hundreds of Ribes were pulled at Saratoga, Lowville, and Lake Clear within infecting distance of white pine stock. Removal of a cultivated black currant in 1923 from across the road from the Saratoga Nursery brought about through public criticism.

(e) Organization poorly supervised by Leader, Camp supervisor and agents. Too much left to foreman's judgment, as locating boundaries, determining width protective strip, etc. Too few inspections of crews in field.

II In the heading up of both Eradication and Educational Organization.

(A) No definite head of the Blister Rust organization, resulting in:-

(a) Inefficient cooperation of Education and Eradication forces.

(b) Overstepping of authority by both Leaders, or neglect of duty for fear of overstepping authority.

(c) "Passing the buck" in case of criticism, in case of assignment of work, and in case of suggestions received.

(d) Uncertainty, dissatisfaction, and unrest among both Eradication and Educational forces, who do not know "who is Boss" and who witness the "passing the buck" between the Leaders with no increase in respect for the organization.

(B) Unwise budgeting and use of funds.

(a) Too large a proportion of money spent on state land, which work is far ahead of private eradication. (Only 20.7% of total state funds were used on cooperative work and Educational projects.)

(b) Salary of York paid from State Blister Rust funds while not all his time is spent on Blister Rust, at least his claim when asked to do definite things is that he has other projects than Blister Rust.

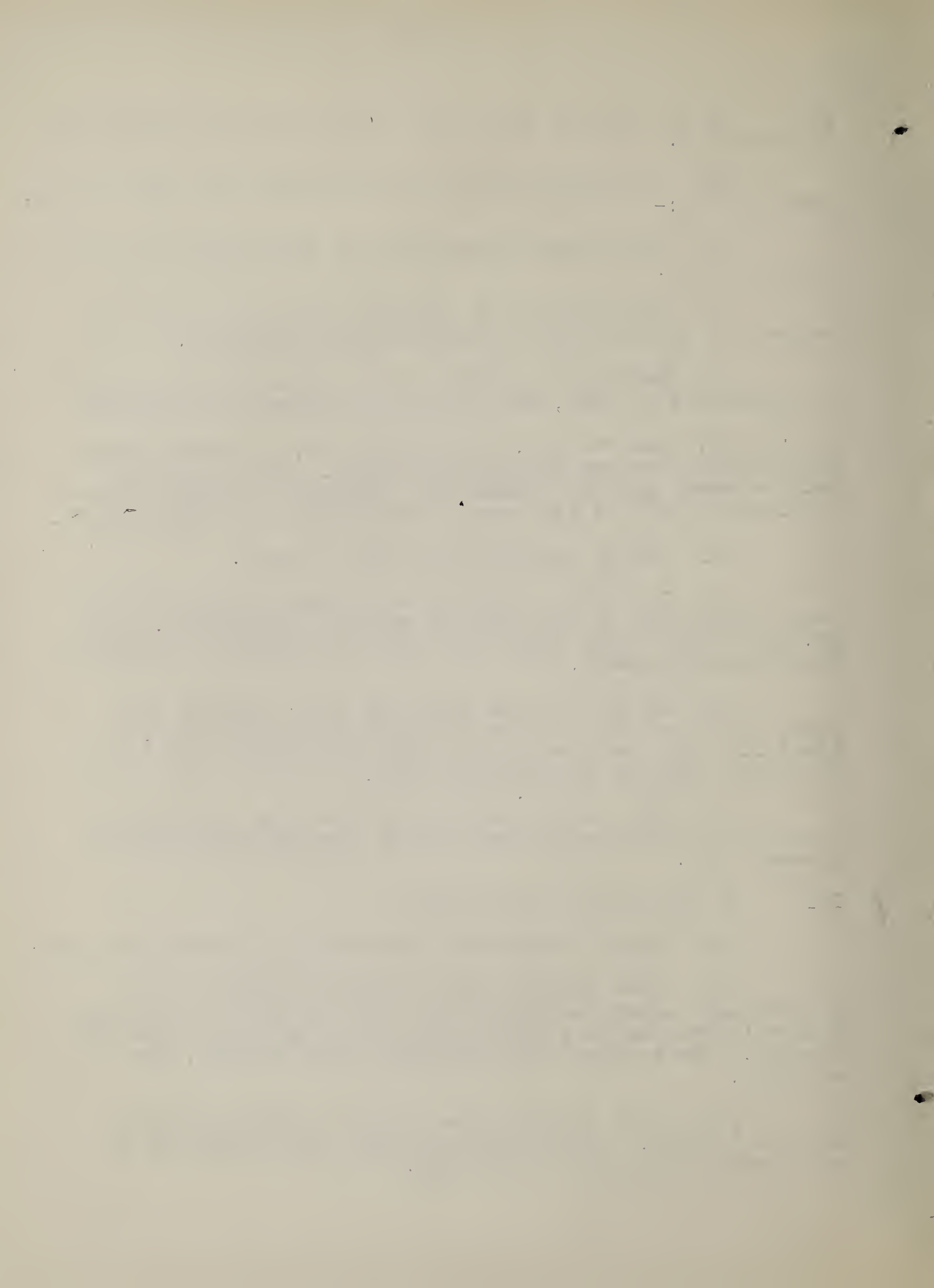
(c) Cost of pine survey far too high and progress too slow to aid Blister Rust Control program materially at present rate.

III In Educational Organization.

(A) Several Agents are not best fitted for their jobs:-

(a) Agent Nichols lacks training necessary to a Blister Rust Agent, is uneducated, and for that reason makes a poor impression as a Federal Agent on the better educated classes. He is not of the type that will develop, too stubborn.

(b) Agent Woodward has failed to produce enough results in 1923. He is careless about work hours and inefficient in carrying on his work.



(c) Agent Williams because of lack of forestry training, and general education is incapable of properly carrying on the work in his district, where forestry interest must be aroused or fed before Blister Rust can be sold.

(d) Agent Miller, although trained in forestry, has not demonstrated ability to effectively put over Blister Rust to the pine owner, and seems to lack confidence in the selling points of Control work.

(e) Agent Harpp lacks forestry training and education to make him a good Federal representative among the better classes in his district.

(B) Full value not being received in Agent work.

(a) Agents work so varied and inclusive that agent has not become proficient or most efficient in all branches of his work. General education or publicity part of his work is done hit or miss, parts of it are over-emphasized, others neglected, no balance or definite campaign planned.

(b) Sales talk is weak for lack of concise and convincing figures and published evidence.

(c) Service work, Forestry Extension work, and reforestation program make inroads in Agent's time and detract from immediate Blister Rust duties.

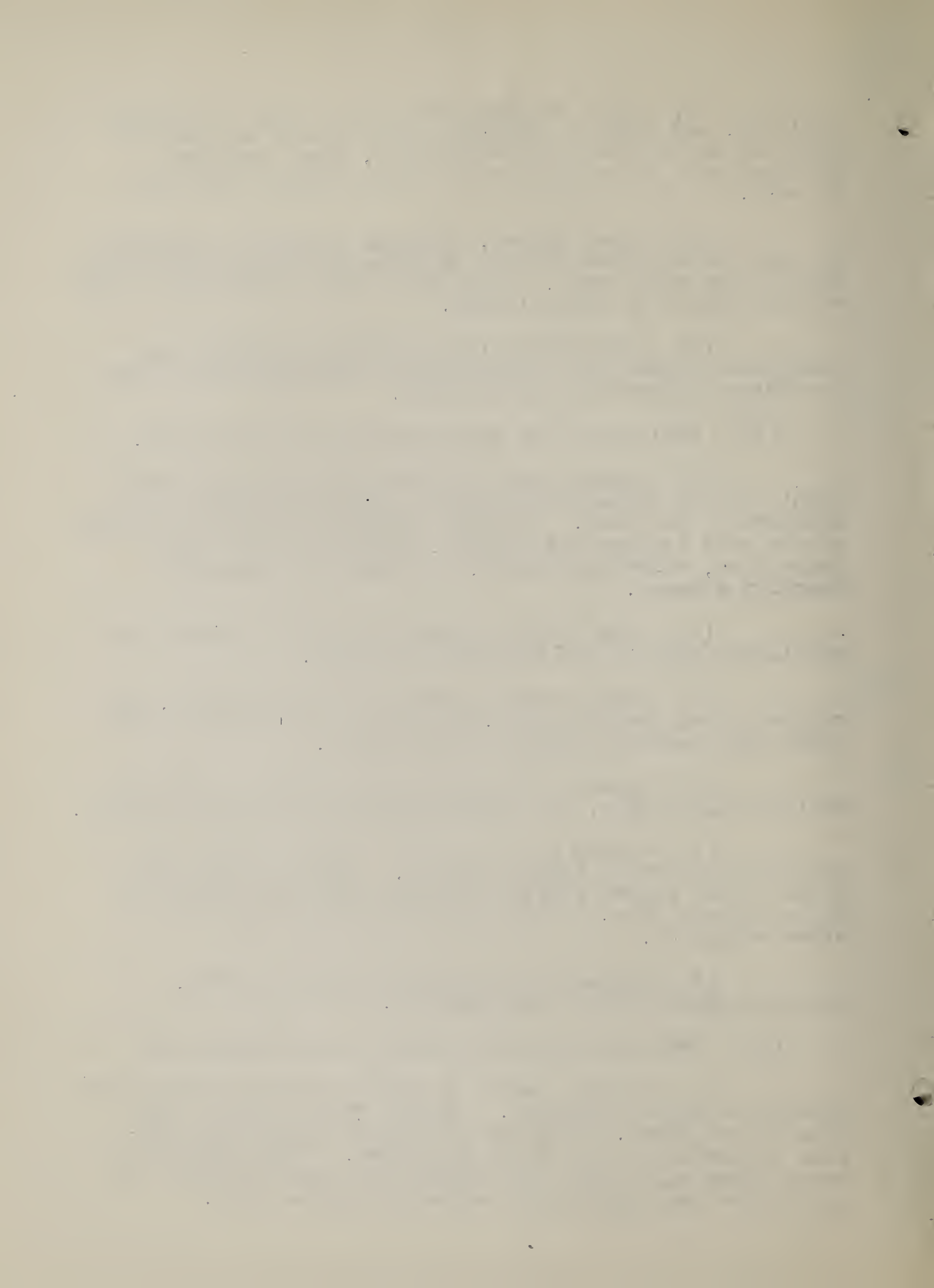
(d) Agents lack up-to-date bulletin on Blister Rust and White Pine, for distribution to interested parties.

(e) Agents are in need of closer supervision, more frequent state leaders visits. York has made few trips to any except Warren and Essex districts, needs to be pushed out of his office chair into the field in the other districts.

(f) Agents lack definite policy and plan, definite procedure and instructions.

(C) Work that should be done is being neglected.

(a) No pine survey or Blister Rust scouting done outside of Agent districts. Forest type of much state land is not known. Presence of natural pine stands outside of present districts is not known. Many planters of state grown white pine are outside the Agent district and have never been approached regarding Blister Rust.



(b) Status of areas eradicated previous to 1923 is not definitely known. Re-eradication is now needed on many 1917-1918 and 1919 areas, but just where and to what extent, is not known.

(c) The Board of Water Supply for the City of New York has not yet been properly approached on the subject of eradication. Several thousand acres in the southern part of the state would furnish a center for eradication foremen for the southern districts.

Plans for Improving Control Work in New York.

I. In Eradication Organization by Fivaz and Filler

(A) Transfer Amadon, Sullivan, and McAveigh to other work. Amadon is best fitted to continue pine survey, to do experimental work, or to do other forestry work for the Commission. Sullivan and McAveigh will be used in making a pine reconnaissance on state land in the Adirondacks and Catskills, and can in that way eventually be dropped. These men will be replaced by two, Corliss or some capable man as head of state land eradication and acting also as supervisor of one of the camps (if two are necessary) and confining his work during the summer to field work on state land eradication, and Saltmarsh (N.H. foreman) as supervisor of the other camp. Both these men mentioned are capable of carrying on educational work during the winter, if not otherwise occupied.

(B) A foreman school in the spring is an idea of Dr. York's and agreed to by Amadon. No plans have been made as yet. Plans will be made immediately for an eradication school, rather than a foreman school, which will be attended by everyone desiring a position on eradication work above that of laborer, from foreman, scout, up through checker and supervisor. No men but those qualified in such a school will be appointed at the beginning of the season, and promotions and demotions will be entirely on the basis of merit. A suggested plan for such a school will be drawn up in the Boston Office in the near future. Such a school will be the starting point for improved methods as well as a better personnel and more adequate organization. Suggestions of ways of improving eradication work and lowering costs are detailed in letter and report (July 12, 1923) Amadon from Filler.

(C) All private land eradication will be directly supervised by the educational agents who are responsible to York.

II Heading up of Entire Blister Rust Organization.

(A) York will be placed in full charge of all eradication and educational work in the state, the head of state land eradication acting as his assistant in that capacity.

(B) Better budgetting and expenditure of state blister rust funds.

(a) State appropriations will be re-apportioned, educational and private land eradication will receive at least

half of it.

(b) York will either spend his full time on blister rust, or a part of his salary will be paid from another state appropriation. However in any case, the state Blister Rust expenditures are greatly in excess of the federal.

(c) Expenditures from blister rust appropriation for pine survey will be stopped until pine survey is put on an efficient cost basis, and is made of practical use to present control program.

III. Educational Organization.

(A) Personnel.

(a) New agent will be started in Essex district and Nichols will go on state payroll eventually to be replaced by new agent. Franklin (formerly New York agent in Washington County) will be O. K. if he returns from year's leave of absence by June.

(b) Agent Woodward will be placed on state payroll and assigned to work where he will be under direct supervision, as pine survey, if such is carried on throughout the year.

(c) Agent Williams will be replaced by new agent, preferably Littlefield (now on state payroll) and Williams will go on state payroll, assigned to other work. Would be a good man for checker or scout.

(d) Agent Miller will be eventually replaced by a new agent, as Miller will be more valuable in the eradication organization as a scout or checker, on state payroll.

(e) A new agent will be placed in charge of the South Hudson Valley District. Harpp will continue as an agent until the new man can handle the entire district, when Harpp will be transferred to state payroll.

(B) Recommendations for Increased Results from Agents.

(a) An assistant state leader will be appointed (federal) to assist York in his duties and especially to help plan and execute the general part of educational work in New York.

(b) Agents will be supplied with better and more educational material, from Albany and from Washington, as well as from specialist.

(c) The Boston Office will cooperate with

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...of the Board, or a majority of the Board, to...

(3) The Board will also have the right to...
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Section 10

(a) Purpose

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Section 11

(a) The purpose of this section is to...
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...of the Board, or a majority of the Board, to...

(c) The purpose of this section is to...

the state office in issuing, for New York, a Blister Rust Manual, including definite state and federal policies, procedure, instructions, cooperative basis, duties, responsibilities, etc. The manual will also include policy limiting service and forestry extension work done by agent.

(d) Up-to-date blister rust and pine bulletins will be published by the state.

(e) It is essential that agents have more contact with the leaders. The appointment of an assistant ^{state} educational leader and an office clerk will allow York to spend more time in the field with his agents. Fivaz will also spend 60% of his time in New York and the agents will be made to carry responsibilities equal to those in other states.

(f) Covered by (c).

(g) Available pine survey data will be made of immediate use to agents.

(h) Blister rust agents will attend eradication school and be sold improved eradication methods.

(i) Blister rust agents will develop detailed plans for their individual districts.

(j) Mapping and area estimating of eradication tracts will be done by the agent, chaining and unnecessary accurate methods of surveying will be abandoned. Eradication area boundaries not marked in field by natural features or fences, fields, etc., will be painted and marked on U.S.G.S. sheets by agent or scout, and these boundaries definitely located ahead of eradication.

(k) More checking and closer supervision will be required of agent.

(l) Agents will be held down more as to expenditures.

(C) Work that will be done, now neglected.

(a) The presence or absence of pine worth protecting outside of the present agent districts, and on state land, will be definitely determined. Scouting of private land outside the districts will be carried on by a free agent, who will at the same time put blister rust

control across, with the owners of scattered white pine plantations outside the districts. Although probably not of immediate importance, this will prevent criticism that some sections are favored. It might also turn up something unexpected as to distribution of the disease.

(b) Scouting will be carried on in old eradication areas, beginning with 1917 and 1918 work, to determine their status in regards to Ribes and to permit plans for re-eradication wherever necessary. Good data will also be secured for Ribes come-back for various types.

(c) Dr. York will make a trip to New York City this winter for the purpose of selling Blister Rust Control to the Board of Water Supply of the City of New York. He will with agent Harpp make preliminary plans, including the estimating of cost of the job based on this year's trial block of the area.

IV. Miscellaneous.

(A) Unless the need of temporary educational assistance develops into a definite job, Prentice will not be re-appointed on federal payroll during the summer. Reasons:-

(a) It takes him several weeks to become familiar with the changes and developments since the past year.

(b) He will turn out full value work only under close supervision, looking at the job as a summer vacation, and is too easy-going.

(c) The results obtained by him during the past season did not warrant the federal expenditures for his salary and ~~expenses~~.

(B) The work of Dr. Snell was of value to blister rust educational work as it furnished definite facts and figures on the areas used most for individual and group demonstration purposes in the state. If the studies are continued, they will have to be planned in much more detail than was done last year, and will be pointed to produce information on damage and disease of general application that is not at present available.

SUMMARY.

The program of recommendations is rather inclusive, it does not represent what can be done in a year, but rather what needs to be done. As a matter of policy, progress will be attempted as follows, in order of importance in each group:

922

1. Placing of York in charge of all blister rust control work.

2. Personnel changes.

- (a) Replacing of Sullivan and McAveigh by one capable man.
- (b) Appointment of an assistant ^{state} ~~educational~~ leader.
- (c) Assignment of Woodward to other work on state payroll.
- (d) Replacing of Williams by Littlefield.
- (e) Replacing of Amadon by Corliss or some capable man.
- (f) Appointment of an office clerk.
- (g) Assignment of another agent to Essex County to eventually replace Nichols.
- (h) Assignment of a new agent to replace Miller.
- (i) Assignment of a new agent to part of South Hudson Valley District, eventually to replace Harpp.

3. Policy and Plans.

- (a) Planning for a more adequate eradication organization.
- (b) Planning for an eradication school, and the putting across of improved methods at that school.
- (c) Writing of a state plan and policy and issuing of a Blister Rust Manual.

4. Educational Methods and Materials.

- (a) Closer supervision of agents and more contact between agents and leaders.
- (b) Making of definite plans of work by agents.
- (c) Supplying of more and better educational material to agents from Albany, Washington, and

by Specialist.

- (d) Publishing of an up-to-date bulletin by the state.
- (e) Making use of available pine survey data.

5. Eradication Details.

- (a) Increase proportion of state appropriation for private eradication and educational work.
- (b) Increase of checking by agents.
- (c) Elimination of eradication area survey for private jobs.

6. Miscellaneous.

- (a) York spend full time on blister rust under present salary arrangement.
- (b) Reduction of expenses by agents.
- (c) Pine survey made less costly and more rapid.

Statement of Blister Rust Control Funds in New York.

Table 54

Source of funds	Jan. 1, 1924-June 30, 1924 Amount	July 1, 1924-June 30, 1925 Amount
state Appropriation	*\$26,693.97	\$50,000.
Nursery funds	0	0
Town Appropriation	0	0
Other local coop.funds	2,000.00	15,000.
Total State coop.funds	28,693.97	65,000.
federal funds allotted	19,401.64	33,000.

*Includes balance of state appropriation from 1923 and \$10,000 special appropriation made available May 1, 1924.

Estimate of Federal Expenditures in New York---January 1--June 30, 1924.

Table # 55

Name	District	Period	Rate per Month	Total Salary	Total Expen- ses	Grand Total
Amadon	State	Jan.-June	\$188.33	\$1129.98	State	\$1,129.98
Harpp	So. Hudson Valley	" "	130.00	780.00	\$700.00	1,480.00
New Agent	"	June	140.00	140.00	100.00	240.00
Williams	Schohaire	Jan.-June	125.00	750.00	700.00	1,450.00
Keib	Lowville	Jan-Feb. 4	130.00	147.33	100.00	247.33
Stevens	"	May-June	140.00	280.00	200.00	480.00
Knowles	Glovers- ville	Jan.-June	130.00	780.00	600.00	1,380.00
Kennedy	Washing- ton	" "	130.00	780.00	600.00	1,380.00
Miller	Saratoga	" "	130.00	780.00	600.00	1,380.00
Woodward	Warren	" "	125.00	750.00	600.00	1,350.00
Fogg	"	" "	140.00	840.00	600.00	1,440.00
Nichols	Essex	" "	135.00	810.00	State	810.00
Franklin	"	June 15-30	160.00	80.00	100.00	180.00
Misc. Expenses					500.00	500.00
TOTALS				\$8047.31	5400.00	\$13,447.31

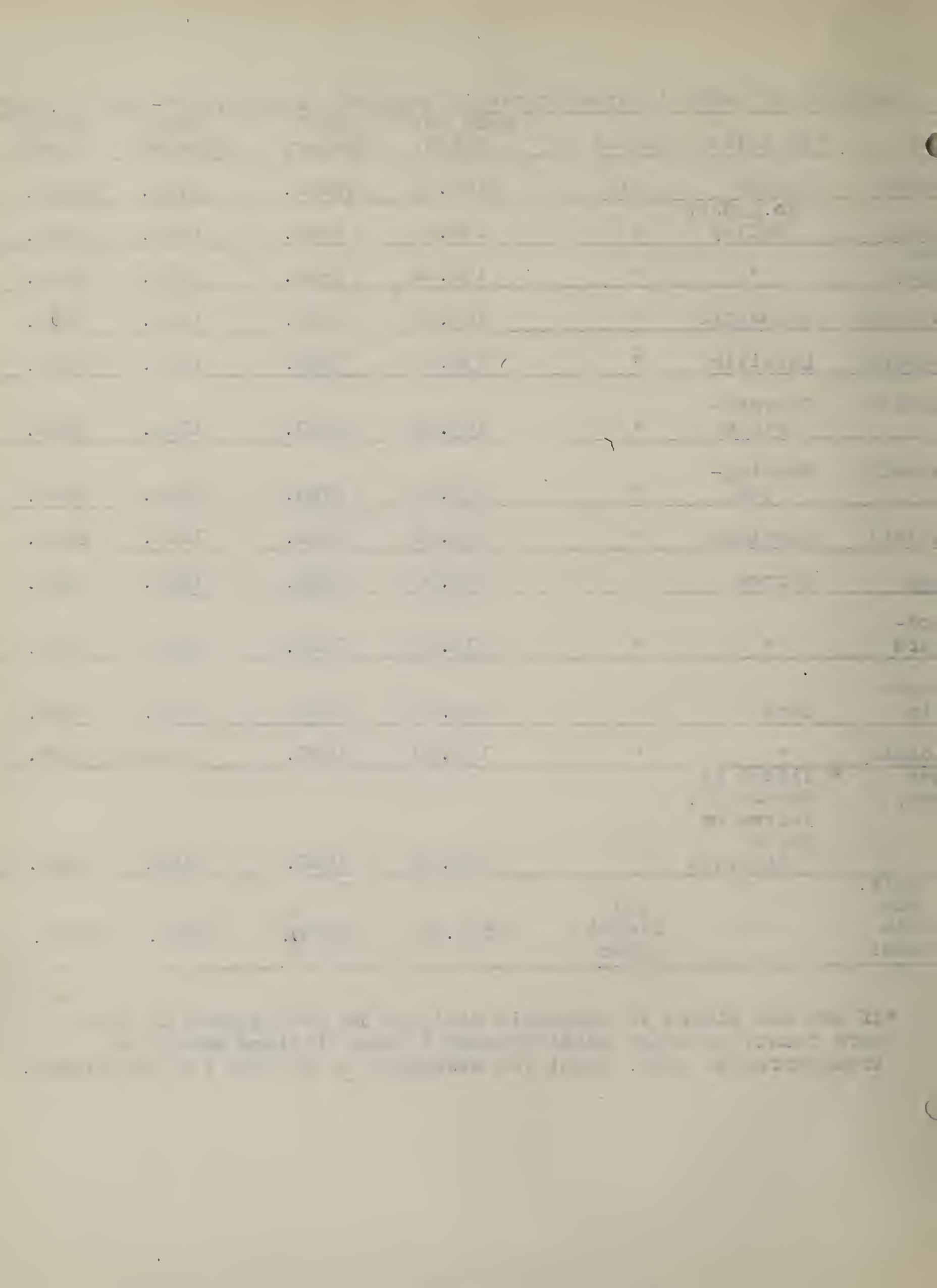
Balance of allotted federal funds which can be assigned for other
work---\$5,954.33

Table
#56

Estimate of Federal Expenditures in New York -July 1, 1924-June 30, 1925.

Name	District	Period	Rate per Month	Total Salary	Total Expense	Total Cost
Amadon	State	All	\$188.33	\$2260.	\$100.	\$2360.
Harpp	So. Hudson Valley	"	130.00	1560.	1100.	2660.
(New Man)	"	"	130.00	1560.	1100.	2660.
Williams	Schoharie	"	125.00	1500.	1100.	2600.
Stevens	Lowville	"	130.00	1560.	1100.	2660.
Knowles	Gloversville	"	155.00	1860.	1100.	2960.
Kennedy	Washington	"	145.00	1740.	1100.	2840.
(Miller)	Saratoga	"	130.00	1560.	1100.	2660.
Fogg	Warren	"	150.00	1800.	1100.	2900.
Woodward	"	"	135.00	1620.	1100.	2720.
Franklin	Essex	"	150.00	1800.	1100.	2900.
Nichols	"	"	135.00	1620.	(State)	1620.
(New Man)	* Either in Schoharie, Warren or Essex District	"	130.00	1560.	1100.	2660.
12 Agts. and State Leader		All fiscal year	1833.33	22000.	12200.	34200.

*If new man placed in Schoharie district he should work in Delaware County at least until October 1 when Williams should be transferred to Asst. Agent job elsewhere or put off for the winter.



WISCONSIN

General Conditions.

Wisconsin has 800,000 acres of white pine according to an estimate made by the state officials. Most of this pine is in the form of small scattered woodlots. None of the pine areas have been mapped but extensive scouting has shown most of the pine is located in the east and west central parts of the state. Due chiefly to grazing, there is very little pine reproduction. The majority of the woodlots are between 20 and 50 years in age.

The blister rust work from 1916 to 1919 inclusive was aimed at exterminating the disease by the destruction of all Ribes and pine in infected areas. The disease apparently originated in Wisconsin from a few plantations of imported pine set out near St. Croix and Amery. In 1916, these trees were destroyed and all Ribes in the vicinity. During 1917, Ribes eradication work was conducted in the Interstate Park, as infected bushes had been found in this region. In 1918 and 1919, many new areas of pine infection were discovered and the cutting of pine in the infected plots was conducted on a larger scale. Over one half million board feet of pine was cut and the tops and small trees burned during the winter of 1919 in an attempt to eradicate the disease. In this same year, a heavy infection on native pine was found at Cylon. The age of this infection apparently antedated that on the planted pine found at St. Croix and near Amery. In the fall of 1919, it was decided the disease could not be eradicated in Wisconsin and that local control by Ribes eradication was the only solution to the blister rust problem. The new policy had the following four main objectives.

1. The destruction of all pines in large infection areas.
2. Cooperation with individuals in Ribes eradication and destruction of infected trees.
3. Extensive scouting to ascertain conditions.
4. Strict enforcement of quarantine laws.

During the period 1920 to 1923, the control work was conducted on this basis. The following table summarizes the results of the eradication work.

Table
57

Summary of Cooperative Ribes Eradication Work in Wisconsin 1917-1923.

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	253	-	38,000	\$ 775.93	\$3.06	150.2
1918	280	-	28,200	500.00	1.80	100.71
1919	20	-	2,000	30.00	1.50	150.00
1920	10,995	-	775,563	6981.44	.64	70.57
1921	8,887	19	457,074	3948.62	.44	51.43
1922	4,770	-	530,958	3007.94	.63	111.3
1923	3,347	-	204,043	2671.98	.798	61.0
Totals	28,552	19	2035,838	\$17915.91	.603	71.3

Eradication work has been confined to the diseased portion of the east and west central parts of the state. Two to three state crews have been employed each year. The state appropriated \$4000 yearly for this work during the period 1919-1922, but in 1923 the appropriation was discontinued.

In the cooperative work with individuals, the policy was for the owner to cover his property pulling all the bushes he could find. Most of the cooperation was in the form of labor, but some owners paid for having the work done. Later state crews would rework the same areas pulling out any bushes missed by the owners. The table following shows the number of cooperators and their total expenditures either as labor or wages paid.

Summary of Individual Cooperation in Blister Rust Control Work
in Wisconsin - Period 1917-1923.

Table 458

Year	No. Individ. Cooperators	% of Total	Amt. Subscribed by Indiv. Coop.	% of Total
1917	-	-	-	-
1918	-	-	-	-
1919	-	-	-	-
1920	19	15.5	\$*871.81	30.5
1921	43	39.1	**1047.18	36.7
1922	20	18.2	332.50	11.6
1923	30	27.2	603.75	21.1
Totals	112	100.0	2855.24	100.0

*\$465.42 of this total subscribed by U. S. Indian Service and Wisconsin Conservation Commission.

**\$632.83 of this total was expended by individuals, the remainder by the U. S. Indian Service.

As far as known, no large pine infection centers remain in Wisconsin. (However, it is expected spot infections will be found from time to time.) This scarcity of diseased pine can be attributed to the following facts:

1. Imported diseased white pine was set out at only a few places.

2. The vigorous fight made in eradicating pine in infection areas, diseased trees, and Ribes in diseased localities as soon as the rust was found.

3. The woodlots are more or less isolated with considerable cleared land or hardwoods between pine stands.

4. The amount of moisture is less in the Lake States, and therefore not as favorable for the growth of the fungus.

5. Scarcity of pine reproduction.

According to Ninman, the blister rust can be checked in the future at a comparatively small cost, but persistent scouting on a small scale and the eradication of Ribes in small infection centers, as they are found, should not be neglected.

Organization.

Since July 1, 1922, the blister rust control organization has consisted of a state leader and a blister rust control agent. During the eradication season the state leader supervised the work of 3-4 state crews. The state leader is directly responsible to the state entomologist (who has the regulatory authority for the destruction of Ribes) with whom the Bureau of Plant Industry cooperates. In the educational phase of the control program, the Bureau and the State Entomologist also cooperate with the State Extension Service through its director. From May to October, the blister rust control agent was employed to supervise a federal experiment at Eau Claire. Due to lack of state funds all control work by state crews ceased July 1, 1923. The blister rust control agent resigned in October 1923.

Results Accomplished in Control Work in Wisconsin during 1923.

Eradication work was conducted in cooperation with pine owners on 3,347 acres. A total of 204,043 wild Ribes were destroyed at a wage cost of 62¢ per acre or a total cost of 79.8¢ per acre. Thirty individuals expended the equivalent of \$603.75, practically all of which represented labor on their own lands. The Ribes averaged 152 bushes per acre. Ninman estimates 800 acres of pine were protected and about 2000 acres were eliminated as non-pine land. No cultivated Ribes were destroyed. Three checks made by the leader covering three acres, showed that the crews eradicated 93% of the 625 Ribes on these plots. In addition the crews made 45 checks, 10958 Ribes were found originally and 1165 on the checks or an efficiency of 89% in the initial working of the areas. Only two crews were employed during the season.

Educational Work.

Ninman spoke at 10 meetings attended by 813 people, placed 10 exhibits in 10 towns, distributed 485 publications, published 5 news items, had 41 initial interviews, and 31 follow up calls, and gave demonstrations of the disease to 11 persons and showed 5 individuals control methods. A large part of Ninman's time was spent on other work during the year, such as quarantine inspection, etc.

Expenditures in Blister Rust Control.

During 1923, a total of \$6806.69 was expended on control work in Wisconsin (exclusive of Eau Claire work) the funds being derived from the following sources: State appropriation (to June 30, 1923) \$1381.74, state nursery funds \$995.36, individual money or labor \$603.75, other state funds \$300, and federal funds \$3525.84. This \$6806.69 was expended by projects in the following proportion: eradication, 39.2%; supervision, 32.4%; education 23.3%; Miscellaneous, 4.4%; and field data .5%. A total of \$2671.98 was expended on control work, the state paying \$2068.23 for crew wages or 77.7% of the total cost, while the individuals paid \$603.75 or 23.3%. For the remainder of the fiscal year 1924, no state funds are available but there is a federal balance of \$932.11. During the fiscal year 1925, Ninman estimates \$500 nursery funds and \$500 from all other sources.

Plans for Developing Blister Rust Control Work in Wisconsin.

Things that should be considered before making plans:

1. A public interest in forestry is just beginning to develop, and the pine owner to realize his woodlot is a real asset.
2. Due to control measures and natural conditions, the disease is now held in very close check.
3. No state appropriation for blister rust control.
4. Necessity of educating the public regarding the need of forestry; farmers must be made to fully appreciate the value of their woodlots and to learn how to manage them in order to get greatest ~~results~~ ^{benefits}.

General Plans.

At the earliest possible date, blister rust control in Wisconsin will be included as part of farm forestry extension work. The Office of Blister Rust Control will aid in getting the various state officials to agree to a definite program covering farm forestry extension and blister rust control. A forestry extension specialist will be employed, the Office of Blister Rust Control paying part of his salary for time spent on blister rust control work. The general plan will be similar to the Minnesota arrangement, discussed under "Plans for Minnesota Work." Until such a specialist is employed, Ninman will be paid from federal funds, after that by the state entomologist. Ninman will confine his work to scouting for the disease, carrying on general educational work, and getting pine owners, in infected areas, to eradicate their Ribes after he has demonstrated control measures.

Federal Blister Rust Control Expenditures in Wisconsin, Funds Available January to June 30, 1924 - \$932.11.

Table #59

Name	Period	Rate per mo.	Total Salary	Total Expenses	Grand Total
Ninman	Jan.1-Feb.15 May 15-June 30	\$183.33	\$ 549.99	\$ 382.12	\$ 932.11

24000 \$2400 Federal funds are allotted during the fiscal year 1925 for payment of Ninman's salary or part of forest extension specialist's salary.

When the following items are considered:

There are several considerations:

1. The

2. The

3. The

4. The

5. The

6. The

7. The

8. The

Period	Cost	Total	Net	Gain
Jan. 1-1951	100.00	100.00	100.00	0.00
Jan. 1-1952	100.00	100.00	100.00	0.00
Jan. 1-1953	100.00	100.00	100.00	0.00
Jan. 1-1954	100.00	100.00	100.00	0.00
Jan. 1-1955	100.00	100.00	100.00	0.00
Jan. 1-1956	100.00	100.00	100.00	0.00
Jan. 1-1957	100.00	100.00	100.00	0.00
Jan. 1-1958	100.00	100.00	100.00	0.00
Jan. 1-1959	100.00	100.00	100.00	0.00
Jan. 1-1960	100.00	100.00	100.00	0.00

MINNESOTAGeneral Conditions.

Minnesota has five and one half million acres of white pine growth according to an estimate made by the state forestry department. The bulk of this acreage consists of more or less mature growth and burned over land. Due to grazing, settlement and fire, there is very little reproduction. Fire is such a serious problem, it minimizes every other forestry factor. The public is just beginning to take an interest in forestry and the woodlot owner to realize his timber crop is a real asset. The bulk of pine lies in the eastern and northern parts of the state. However even in these areas, white pine is very scarce in many townships.

Blister rust is also scarce in Minnesota. This is apparently due to the following reasons:

1. Only a very few infected foreign pine were set out in Minnesota and these trees were restricted to a comparatively small area in the east central part of the state.
2. Prompt application of control measures in the infected areas as soon as the disease was discovered.
3. The scarcity of pine in townships adjoining the infected areas.
4. The scattered condition of the pine in general, stands widely separated by burned over areas or brush.
5. Scarcity of wild Ribes over many portions of the state, and where found usually buried in brush.
6. Climate drier than in east and far west, therefore not so favorable for development of fungus.

Scouting in the north and eastern parts of the state during 1922 and 1923 failed to show any new pine infection areas. The majority of the cankers in the old infection plots were cut out in previous years. Intensive scouting in these areas during 1923 showed only a very few old cankers left.

All control work has been carried on by the state, except in 1921 when 9 cooperators expended \$128.60, and in 1922 when 2 individuals spent \$25.70 on Ribes eradication. The following table summarizes the control work performed in Minnesota.

Summary of Cooperative Control Work in Minnesota Period 1917-1923

Table #60

Year	Acres	No. Ribes		Total Cost	Per Acre Values	
		Cult.	Wild		Cost	Ribes
1917	961	-	?	\$1,000.06	1.03	-
1918	1,200	-	90000	3,000.00	2.41	75.0
1919	2,440	-	156304	5,596.66	2.29	64.06
1920	677	118	120297	5,160.03	7.61	177.53
1921	589	-	39773	397.78	.67	67.52
1922	75	-	904	25.70	.34	12.0
1923	0	0	0	0	0	0
Totals	5,942	118	407278	\$15,180.23	2.55	*81.7

Note: *Acreage for 1917 omitted in obtaining per acre Ribes figure.

No Ribes figure available for 1917.

Organization.

Since the adoption of the new eight year control program, two blister rust control agents have been employed in Minnesota. One of these agents (Braden) worked under the direction of the state entomologist, while the other (Roberts) was supervised by the state forester. The Bureau of Plant Industry cooperated jointly with the state forestry department and the State Nursery inspection department. (The nursery inspector is also state entomologist.) In the educational phase of the work, the Bureau and the two above mentioned state offices also cooperated with the state extension department through its director. Braden resigned from the work July 1, 1923, while Roberts began his duties in February 1923 and resigned in October 1923.

Results Accomplished in Blister Rust Control During 1923 - Minnesota

Very few tangible results were accomplished by the Minnesota agents during 1923. In January and February Braden carried on general educational work, and from March - May 15th, he was employed on federal quarantine inspection. During May and June he continued his general educational work, and did some extensive scouting to locate pine areas in the northern part of the state, prior to resigning July 1, 1923. Roberts spent February and March in the Eastern States learning the blister rust control work. During April and May, he was on federal quarantine inspection. In June he made an inspection trip to study eradication methods in Wisconsin. During the remainder of the summer Roberts did general educational work, scouted in the southern portion of the state for pine and infection, made an examination of the old infection areas in the eastern part of the state, and visited many of the county agricultural agents. In September he had several exhibits at fairs. He became sick in October and resigned October 31, 1923. No Ribes eradication work was carried on during 1923.

Blister Rust Control Expenditures in Minnesota - 1923.

During 1923, a total of \$6177.74 was expended for control work in Minnesota, the cooperators paying for the work in the following proportion: State Forest Service \$894.72; State Nursery Inspector \$2202.40, and Office Blister Rust Control \$3080.62. All of the federal money was expended on the project education, \$2590.87 being paid for salaries of Braden and Roberts and expenses of Braden, and \$489.75 for salary and expenses of Cheyney. The funds spent by the State Forest Service were used to pay the expenses of Roberts \$684.72, and an office expense of \$210. The state nursery funds were expended as follows: \$721.12 for supervision by Rugles, \$410.83 for educational work by Nursery Inspection men (\$150 of this being for office expenses), and \$1070.45 for field data (Nursery inspection.) The salaries and expenses of Braden and Roberts while on quarantine inspection are not charged against dollar for dollar federal money.

Plans for Blister Rust Control Work in Minnesota.

General plans have already been made to include blister rust control as a part of farm forestry extension work in Minnesota. A specialist, Mr. Tillotson, has been selected and will be ready to begin work in October provided the cooperators sign a definite agreement before that time. Under this arrangement, the Office of Blister Rust Control will pay part of the salary or expenses of the forest extension specialist for the time spent on blister rust control work. The Office of Blister Rust Control will aid in the development of the farm forestry program as far as it can properly do so, because it is through farm forestry extension that most adequate blister rust control in Minnesota can be secured. It is also expected that blister rust will increase in the future unless control work keeps pace with the increased regrowth of pine. White pine is a highly profitable tree and will continually increase in importance in the farm woodlots of Minnesota. As young pine increases in extent and value, blister rust control will form a highly important project in farm forestry work.

Since blister rust control will be handled as a project in farm forestry extension, the result will be that the specialist will be in close contact with the extension forces at all times. The specialist will give his time to the development of farm forestry extension work, and will make blister rust control the principal project in his forestry extension work.

The state director of extension will give general supervision and direction to the forest extension specialist and conduct the work in harmony with the general policy laid down by the State Forest Service. The State Forest Service will direct local control work in Ribes eradication. However, very little control will be needed since the diseased areas have already been covered in previous years. The specialist, under the state extension director's supervision, will handle the educational phases of blister rust control, one of the chief objectives being to secure the elimination of cultivated black currants from the state by educational campaigns through the county agricultural agents and others. The specialist will also supervise any local control work during the next year or two. The state forester and the state director of extension will decide in which part of the state farm forestry work will be conducted, however it will be necessary for the specialist to get into all parts of the state in order to start the educational campaign against cultivated black currants and to determine what other blister rust control measures are required.

The state nursery inspector is spending \$1500 annually on what is properly classed as blister rust control, while the State Forest Service, through its present employees, is giving advice to pine owners relative to blister rust control and furnishing them assistance to an extent worth at least \$1500 annually. Thus, the state is now spending on blister rust control more than enough money to offset the \$2700 federal funds which the Office of Blister Rust Control proposes to spend under the agreement. The farm forestry extension work will be financed by the State through \$2000 in cash, half of which will be contributed by the State Forest Service and the other half by the University of Minnesota (Forestry Department and Extension Service.) Thus, there is a total of \$4700 available for the farm forestry and blister rust control work. The specialist will therefore devote $27/47$ of his time to blister rust work, the balance of his time ($2/5$) can be given legitimately to farm forestry extension. This is based on the assumption that the State Nursery inspector and State Forest Service continue to spend at least \$2700 on routine blister rust work as at present.

SUMMARY OF COOPERATIVE RIBES ERADICATION WORK IN NEW ENGLAND, NEW YORK AND WISCONSIN
DURING 1923.

Table # 61

STATE		MAINE	N. H.	VT.	MASS.	R. I.	CONN.	N. Y.	TOTALS NEW ENG. & NEW YORK	WISC.	
Individual Cooperation	Without Direct State Supervision	No. Coop. Cult. Ribes	6	-	2	464	-	16	-	488	-
	Who Brad. Wild Ribes	47	-	23	39	-	6	-	115	26	
	No. Acres Eradicated	4,356	-	2,870	1,407	-	511	-	9,144	3,267	
	No. Wild Ribes Pulled	32,456	-	11,212	1,290	-	2,100	-	47,058	?	
	No. Cult. " "	278	-	51	5,818	-	16	-	6,163	-	
	No. Men Employed	75	-	42	473	-	9	-	599	-	
	TOTAL Wild Ribes	\$997.60	-	\$975.60	\$47.90	-	\$133.50	-	\$2,154.60	\$566.75	
	COST Cult. Ribes	8.00	-	-	574.56	-	-	-	582.56	-	
	Per Acre Cost-Wild R.	.275	-	.34	.03	-	.26	-	.235	-	
	With Direct State Supervision	No. Coop. Cult. R. Only	52	-	1	122	34	1	-	210	-
Who Brad. Wild & Cult.	1043	121	197	431	1	3	57	1853	4		
No Acres Eradicated	30,999	28,866	22,320	72,380	40	1,101	10,025	165,731	80		
No. Wild Ribes Pulled	1,162,962	709,374	267,358	1,349,887	1,900	15,304	400,665	3,907,450	-		
No. Cult. " "	11,817	4,061	1,183	6,934	600	232	348	25,175	-		
TOTAL State	-	\$1,918.37	\$1,251.09	\$6,683.94	\$30.72	\$357.53	\$5,934.64	\$16,356.29	?		
TOWN	Town	\$6,899.99	10.48	-	-	-	-	-	6,910.47	-	
COST	Individual	7,754.74	7,635.45	6,271.74	6,272.44	15.36	733.95	9,548.63	38,232.31	\$37.50	
Total	Total	14,654.73	9,564.30	7,522.83	13,136.38	46.08	1,091.48	15,483.27	61,499.07	-	
Cost Per Acre		.51	.33	.337	.18	1.03	.991	1.54	.371	?	
With * Without Direct State Supervision	Total No. Coop. Wild R.	1090	121	220	470	1	9	57	1968	30	
	Total No. Acres Brad.	35,355	28,866	25,190	73,787	40	1,612	10,025	174,875	3,347	
	No. Wild Ribes Pulled	1,195,418	709,374	278,570	1,351,177	1,900	17,404	400,665	3,954,508	204,043	
	TOTAL State	-	\$1,918.37	\$1,251.09	\$6,683.94	\$30.72	\$357.53	\$5,934.64	\$16,356.29	\$2,068.23	
	TOWN	Town	\$6,899.99	10.48	-	-	-	-	-	6,910.47	-
	COST	Individuals	8,760.34	7,635.45	7,247.34	6,894.90	15.36	867.45	9,548.63	40,969.47	603.75
	Total	Total	15,660.33	9,564.30	8,498.43	13,758.84	46.08	1,224.98	15,483.27	64,236.23	2,671.98
	No. Ribes Per acre	35.0	24.6	11.0	18.0	47.0	10.8	40.0	22.6	61.0	
	Cost Per Acre	.49	.33	.336	.19	1.03	.76	1.54	.367	.798	
	Town Cooperation (As in N. H.)	No. Towns Approp.	29	81	-	-	-	1	-	121	-
Acres Eradicated		-	239,371	-	-	-	12,450	-	251,821	-	
No. Wild Ribes Pulled		-	2,787,359	-	-	-	270,929	-	3,058,288	-	
No. Cult. " "		-	20,718	-	-	-	-	-	20,718	-	
TOTAL Town		-	\$2,742.13	-	-	-	\$497.99	-	\$33,240.12	-	
COST State		-	9,345.03 *	-	-	-	5,140.17	-	14,485.20	-	
Total		-	42,087.16	-	-	-	5,638.16	-	47,725.32	-	
Wild Ribes Per Acre		-	11.6	-	-	-	22.0	-	12.1	-	
Cost Per Acre		-	.17	-	-	-	.45	-	.189	-	
Non-Cooperative Ribes Scouting by State & Govt. Men		Acres Eradicated	301,097	-	-	124,844	31,268	-	-	457,209	-
	No. Wild Ribes Pulled	12,862	-	-	206,930	12,375	-	-	223,167	-	
	No. Cult. " "	-	-	-	2,135	864	-	-	2,999	-	
	TOTAL State	\$860.30	-	-	\$9,322.08	\$1,849.88	-	-	\$12,032.26	-	
	COST Govt.	2,812.53	-	-	-	-	-	-	2,812.53	-	
	Cost Per Acre	.012	-	-	.075	.06	-	-	.033	-	
	Ribes Per Acre	.04	-	-	1.6	.5	-	-	.5	-	
	Work on State Lands	Acres Eradicated	-	-	-	2,300	-	-	5,434	8,734	-
		No. Wild Ribes Pulled	-	-	-	218,000	-	-	505,952	723,952	-
		No. Cult. " "	-	-	-	-	-	-	19	19	-
Cost		-	-	-	\$5,351.00	-	-	\$28,746.51	\$34,097.51	-	
Cost Per Acre		-	-	-	\$1.61	-	-	\$5.29	\$3.90	-	
Ribes Per Acre	-	-	-	66.1	-	-	93.1	82.9	-		
GRAND TOTALS	No Acres Eradicated	336,452	268,237	25,190	201,931	31,308	14,062	15,459	892,639	3,347	
	No. Wild Ribes Pulled	1,209,282	3,496,733	278,570	1,776,107	14,275	288,333	906,617	7,969,915	204,043	
	No. Cult. " "	12,095	24,779	1,224	14,887	1,464	248	367	55,074	-	
	Total Cost	\$19,333.16	\$51,651.48	\$8,498.43	\$28,411.92	\$1,895.96	\$6,863.14	\$44,229.78	\$160,883.85	\$2,671.98	
	Cost Per Acre	.057	.192	.337	.14	.06	.488	2.87	.181	.798	
Ribes Per Acre	3.6	13.3	11.0	7.8	.45	20.5	57.3	8.9	61.0		

* Includes cost of equipment--\$459.98 and 600 acres re-eradication work--\$72.39 in N. H.

THE FOLLOWING TABLE SHOWS THE RESULTS OF THE ANALYSIS OF THE SAMPLES OF THE ABOVE MENTIONED MATERIALS.

NO.	PERCENTAGE	WGT.	ANALYSIS
1	-	6	...
2	-	74	...
3	-	33.4	...
4	-	33.3	...
5	-	872	...
6	-	75	...
7	-	68.782	...
8	-	60.3	...
9	-	373	...
10	-	33	...
11	-	1001	...
12	131	688.33	...
13	338.33	338.33	...
14	338.33	338.33	...
15	131	113.11	...
16	338.33	-	...
17	338.33	338.33	...
18	338.33	338.33	...
19	338.33	338.33	...
20	338.33	338.33	...
21	338.33	338.33	...
22	338.33	338.33	...
23	338.33	338.33	...
24	338.33	338.33	...
25	338.33	338.33	...
26	338.33	338.33	...
27	338.33	338.33	...
28	338.33	338.33	...
29	338.33	338.33	...
30	338.33	338.33	...

Results Accomplished in Cooperative Blister Rust Control Work
in the Northeastern and Lake States During 1923.

The cooperative blister rust control work for 1923 in the Northeastern and Lake States will be summarized by series of tables, analysis given under the following headings: Eradication, Education, Hours Worked, and Expenditures:

I Eradication.

Description and Analysis of Table # 61 (Summary of Cooperative Ribes Eradication Work in the Northeastern States During 1923).

Cooperation with Individuals in Ribes Eradication Work (New York and New England) With and Without State Supervision.

During 1923, 1968 individuals cooperated in eradicating 395,508 wild Ribes from 174,875 acres at a total cost of \$64,236.23 or at a per acre cost of 36.7 cents. Of this total cost, the state paid \$16,356.29 (25.4%); the towns \$6,910.47 (17.5%); and the individuals \$40,969.47 (57.1%). The cost of this individual cooperative Ribes eradication work in the various states was paid by the cooperators as follows:

Maine \$15,660.33, (towns 44.1% and individuals 55.9% - no State money); New Hampshire \$9,564.30 (State 20.6%, towns .1% and individuals 85.3%); Vermont \$8,498.43 (State 14.7%, towns .1% and individuals 85.3%); Massachusetts \$13,758.84, (State 49.8% - individuals 50.2%); Rhode Island \$46.08 (State 66.6% - individuals 33.3%); Connecticut \$1,224.98 (State 29.2% - individuals 70.8%); and New York \$15,483.27 (State 38.3% - individuals 61.7%). Thus the proportion paid by the state ranges from zero in Maine, (14.7% in Vermont) to 49.8% in Massachusetts (and 66.6% in Rhode Island - only one cooperator), while the part paid by the individual cooperators varies from 33.3% in Rhode Island (50.2% in Massachusetts) to 85.3% in Vermont. The cost per acre ranges from 19 cents in Massachusetts to \$1.54 in New York, and the Ribes vary from 10.8 bushes per acre in Connecticut to 40 in New York and 47 in Rhode Island. (In Rhode Island 1900 bushes were pulled on 40 acres (the only cooperative work needed in the state). The number of cooperators in the States varies from one in Rhode Island to 1090 in Maine. The proportion of cooperators eradicating wild Ribes in each State to the total number (1968) in all states is as follows: Maine 55.4%; Massachusetts 23.8%; Vermont 11.2%; New Hampshire 6.1%; New York 2.9%; Connecticut .4%; and Rhode Island .05%. In addition, 698 individuals in 5 States cooperated in destroying their cultivated bushes. The acreage eradicated by individuals, in cooperation with the states (174,875 acres) varies from 40 acres in Rhode Island, 1612 in Connecticut to 73,787 acres in Massachusetts.

Individual Cooperation in Ribes Eradication -
Without State Supervision.

Eradication work without any state supervision was carried on in Maine, Vermont, Massachusetts, and Connecticut. A total of 488 persons eradicated their cultivated bushes only, while 115 persons destroyed the wild Ribes on their lands.

A total of 9144 acres were cleared of 47,058 bushes at a cost of \$2154.60 or 23.5 cents per acre. In addition 6163 cultivated Ribes were destroyed at a cost of \$582.56. Ninety five percent of the persons eradicating cultivated Ribes without supervision were located in Massachusetts, while the number of people destroying wild Ribes ranges from 6 in Connecticut to 47 in Maine. The cost per acre varies from 3 cents in Massachusetts to 27.5 cents in Maine. A total of 599 men were engaged in this work. This unsupervised control work represents 5.2% of the total area cleared of Ribes by cooperating individuals both with and without state supervision, and 1.0% of the total acreage eradicated of Ribes during 1923 in New England and New York.

Individual Cooperation in Ribes Eradication - With State Supervision

With direct state supervision 1853 individuals cooperated in eradicating 3,907,450 wild Ribes from 165,731 acres at a total cost of \$61,499.07 or a per acre cost of 37.1 cents. Also, 210 individuals cooperated in destroying their cultivated bushes. A total of 25,175 cultivated Ribes were eradicated. All states had private cooperators who destroyed wild bushes, the number of cooperators ranging from one in Rhode Island, three in Connecticut to 1043 in Maine. The acreage worked varied from 40 acres in Rhode Island, 1101 in Connecticut to 72,380 acres in Massachusetts. This Massachusetts acreage is 43% of the total area covered by individuals in 1923 with direct state supervision. In Maine and New Hampshire the cooperation with individuals resulted in over one million Ribes being destroyed in each of these states, while in Massachusetts over 700,000 bushes were pulled.

The total cost of this cooperative work was shared in the following proportion: state 26.5%; towns 11.2%; individuals 62.3%. In the various states the cost of this cooperative work and the proportionate part paid by the cooperators is as follows: Maine \$14654.73 (Towns 47% - individuals 53% - no state money); New Hampshire \$9564.30 (State 20.6%, towns .1% and individuals 79.8%); Vermont \$7522.83 (State 16.5% - Individuals 83.5%); Massachusetts \$13,136.38 (State 52.2% - Individuals 47.8%); Rhode Island \$46.08 (State 66.6% - individuals 33.3%); Connecticut \$1091.48 (State 32.7% - individuals 67.3%); and New York \$15483.27 (State 38.3% - individuals 61.7%). The proportion paid by the state department ranges from zero in Maine (16.5% in Vermont) to 52.2% in Massachusetts (and 66.6% in Rhode Island - only one cooperator), while the part paid by the individual cooperators varies from 33.3% in Rhode Island (47.8 in Massachusetts) to 83.5% in Vermont. The cost per acre ranges from 18 cents in Massachusetts to \$1.54 in New York.

Town Cooperation.

In three states, Maine, New Hampshire and Connecticut, 121 towns cooperated in control work during 1923, expending \$40,140.11, of which \$39,530 was appropriated in 1923. Town appropriations by states in 1923 were as follows: Maine, 39 towns - \$7115; New Hampshire, 81 towns - \$31915; and Connecticut, 1 town - \$500. In Maine the town funds (\$6899.99) were used entirely to pay the wages of town foremen to supervise the eradication work done by individuals. Therefore, the town funds in Maine are listed under the heading "Individual cooperation with direct State supervision." However, in New Hampshire and Connecticut the town money was used to employ state crews which worked definite town blocks regardless of property lines. Although only one town appropriated in Connecticut during 1923, yet control work was carried on in three towns. In one of these, the individuals subscribed for town work in 1922 and paid out more money on the project than did the state department. The other town in 1924 will expend an amount of individual town subscriptions at least equal to state expenditures in that town during 1923. All town money used in New Hampshire on eradication work in 1923 (\$32,742.13 was appropriated at town meetings.

In Connecticut and New Hampshire as a result of the expenditure of town and state funds, 251,821 acres were cleared of 3058288 wild Ribes and 20718 cultivated bushes at a cost of \$47,725.32, the towns paying 69.6% of the total cost and the state departments 30.4%. Of this total acreage worked 95.1% was in New Hampshire. In Connecticut the cooperative town work cost \$5638.16, the town paying 8.8% of the cost and the state department 91.2%. However, as mentioned above, in 1922 one town expended more than the state in 1922 and in 1924 another town will pay the bulk of the control costs in their town next year to offset state expenditures in 1923. In New Hampshire the town work cost \$42,087.16, the state paying 22.2% and the towns 77.8% of the total costs. The state cost in New Hampshire includes \$459.98 paid for eradication equipment and \$72.39 expended on re-eradication work. In New Hampshire 2,787,359 wild Ribes were destroyed at a cost of 17 cents per acre while in Connecticut 270,929 wild bushes were pulled at a cost of 45 cents per acre. The wild Ribes per acre averaged 22 in Connecticut and 12.1 bushes in New Hampshire. No cultivated Ribes were destroyed in Connecticut in this cooperative town work. The acreage worked in Connecticut and New Hampshire in cooperation with towns represents 89% of the total area cleared of Ribes in these two states during 1923 and 28.2% of the total acreage worked in New England and New York.

Non-Cooperative Ribes Scouting by State and Government Men.

In two states, Massachusetts and Rhode Island, the Ribes Scouts were paid entirely from State funds, while in Maine all Ribes Scouting was done at the expense of the Government or State department. In the other states any Ribes Scouting was carried on in cooperation with towns or individuals. This non-cooperative Scouting work in Maine, Rhode Island and Massachusetts resulted in 457,209 acres being cleared of 233,167 wild Ribes and 2999 cultivated bushes at a cost of \$14,844.79 or 3.3 cents per acre. The Ribes averaged 1/2 bush per acre. In Massachusetts this Scouting cost the State department \$9322.08, while Rhode Island expended 1849.88 on similar work. However, in Maine the Government paid 76.6% of the total cost (\$3674.83) of the Ribes Scouting, while the State department paid 23.4%. No cultivated bushes were destroyed by the Scouts in Maine and only 13,862 wild Ribes, but in Massachusetts the State Scouts eradicated 206,930 wild Ribes and 2135 cultivated bushes. The proportionate acreage worked by the Scouts in these three states to the total area cleared of Ribes during 1923 in each of the states is as follows: Maine 89.4%, Massachusetts 61.8%, and Rhode Island 99.9%. The total acreage covered by the Scouts in these three states is 51.2% of the total area cleared of Ribes in New England and New York during 1923.

Eradication Work on State Owned Lands.

The State forestry departments of New York and Massachusetts eradicated 723,952 wild Ribes from 8734 acres of State owned lands at a cost of \$34,077.51 or at a per acre cost of \$3.90. In Massachusetts 218000 Ribes were destroyed on 3300 acres of State land at 1.61 cents per acre, while in New York 505,952 wild bushes were eradicated from 5434 acres at a per acre cost of \$5.29. The wild Ribes per acre on State lands in Massachusetts averaged 66.1 bushes and in New York 93.1 Ribes. The cost per acre for the Ribes eradication on the State reserve in New York is 243% greater than the cost of control work on private lands in this State where the Ribes averaged 40 bushes per acre. All eradication work was done by State crews in both areas. In Massachusetts the control work on the State forests cost 1115.% more than on the private lands where the bushes numbered only 7 per acre. This great difference in cost is due to the fact that crew work was required on the State forests, while on private lands large areas (61.8 of the total acreage worked in 1923) were covered by Scouts. The proportionate acreage of State owned lands cleared of Ribes in 1923 to the total area worked during 1923 in each of these states is as follows: New York

35.1% and Massachusetts 1.6%. The total area of state owned land covered represents only .1% of all the acreage worked in the Northeastern States during 1923.

Grand Totals for Ribes Eradication Work - 1923- New England and New York.

During 1923 in New England and New York a total of 892,639 acres were eradicated of 7,969,915 wild Ribes and 55,074 cultivated bushes at a cost of \$160,883.85 or at a per acre cost of 18.1 cents. The percent of the acreage worked in each state to the total for all states is in the following proportion: Maine 37.6%, New Hampshire 30.3%, Massachusetts 22.6%, Rhode Island 3.5%, Vermont 2.8%, New York 1.7%, and Connecticut 1.5%. The number of wild Ribes destroyed ranged from 14,275 in Rhode Island to 3496,733 in New Hampshire while the number of cultivated bushes eradicated varied from 248 in Connecticut to 24,779 in New Hampshire. The cost of eradication work per state ranged from \$1895.96 in Rhode Island to \$44,229.78 in New York, and the per acre values varied from 5.7 cents in Maine to \$2.87 in New York. Likewise, the wild Ribes per acre ranged from 3.6 bushes in Maine to 57.3 Ribes in New York.

Ribes Eradication Work in Wisconsin.

In addition to the totals shown above for New England and New York, 3347 acres in Wisconsin were cleared of 204,043 wild Ribes at a cost of \$2671.98 or a per acre cost of 79.8 cents. The bushes numbered 61 per acre. No cultivated Ribes were destroyed. Part of the eradication work was done by 30 pine owners who eradicated as many bushes as they could find or had time to pull in advance of the state crews covering their lands. The value of this cooperative work done by pine owners amounted to \$603.75 or 22.5% of the total amount of funds spent on control work in Wisconsin, during 1923.

Grand Totals for all States - Cooperative Ribes Eradication Work - 1923.

Including Wisconsin, with the totals for New England and New York, a grand total of 895,986 acres were eradicated of 8,173,960 wild Ribes and 55074 cultivated bushes at a cost of \$163,555.85 or 18.2 cents per acre. The Ribes averaged 9.1 bushes per acre.

The above analysis shows: (1) that 99% of all the control work is supervised by state foremen or scouts; (2) the yearly amount of eradication work needs to be increased in all states, but especially in New York, Maine, and New Hampshire; (3) general need for increased cooperation with towns and individuals; (4) lack of balance and excessive costs in eradication work in some states.

In Maine about 90% of the acreage protected is eliminated by the Government and state scouts as containing few or no Ribes. The town money should also be used to pay a part of this, scouting costs, by having the town foremen do scouting when not occupied in directing crews on individual cooperators' lands. Additional state, town, and private money is needed in Maine to complete the control program within the time limit.

New Hampshire especially needs to increase the amount of cooperation with individuals. It was the only state to show a decrease in such cooperation during 1923 as compared with 1922 results.

In Vermont town funds should be obtained to pay the excess labor and transportation charges between jobs on pine owners' lands, if state funds are not available for this purpose. A larger amount of state money is also greatly needed in order to more effectively organize the Vermont work.

Under the conditions in Rhode Island, Connecticut, and Massachusetts the general plan of cooperative Ribes eradication appears to be satisfactory, however the per acre cost appears to be too high in Connecticut. Additional individual cooperators are needed in Massachusetts and Connecticut. No town money is needed in Massachusetts as long as the state continues to appropriate sufficient funds, which can be used to pay the cost of scouting and for hire of foremen.

The New York eradication work is poorly balanced. Too large a proportion of the state money is used on public lands. An amount of state money at least equal to the individual funds should be expended on private lands to employ state foremen to supervise the individual cooperative work. The cost of eradication especially on state lands is excessively high. A greatly increased amount of individual cooperation is needed, and possibly county appropriations.

A discussion of weaknesses and recommendations in the control work is brought out in detail under the report of the work in each state.



SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN RIBES ERADICATION DURING 1923
New England, New York and Wisconsin.

Table 462

TOWN COOPERATION											INDIVIDUAL COOPERATION ** (In Wild Ribes Eradication)			
State	No. Towns Appropriating	% of Total in Each State	Amount Appropriated	% of Total in Each State	Amount Town Funds Spent *	% of Total in Each State	No. of Cooperators	% of N. Y. & New Eng. Total in each State	Cost to Individual Cooperators	% of N.Y & New Eng. Total in Each State				
Maine	39	32.2	\$7,115.00	17.9	6,899.99	17.1	1090	55.4	\$8,760.34	21.3				
N. H.	81	66.9	31,915.00	80.7	32,742.13	81.5	121	6.1	7,635.45	18.6				
Vt.	-	-	-	-	-	-	220	11.2	7,247.34	17.6				
Mass.	-	-	-	-	-	-	470	23.8	6,894.90	16.8				
R. I.	-	-	-	-	-	-	1	.05	15.36	.03				
Conn.	1	.8	500.00	1.2	497.99	1.2	9	.4	867.45	2.1				
TOTALS NEW ENG.	121	100.0	39,530.00	100.0	40,140.11	100.0	1911	97.1	31,420.84	76.6				
N. Y.	-	-	-	-	-	-	57	2.9	9,548.63	23.3				
TOTALS N. Y. & N. E.	121	100.0	39,530.00	100.0	40,140.11	100.0	1968	100.0	40,969.47	100.0				
Wisc.	-	-	-	-	-	-	30	-	603.75	-				

* In N. H. . 827.13 of 1922 unspent town money was used in 1923.

** A total of 698 additional cooperators (individuals) in New England also cooperated in eradicating cultivated bushes.
(Maine-58, Vt.-3, Mass.-586, R.I.-34, Conn.-17.)

In order to show the amount of cooperation and eradication in 1923 in the most simplified manner two tables will be given below, one summarizing the town and individual cooperators and the other the Ribes eradication results. As the data given in these tables has already been analyzed above, no further remarks will be made concerning these figures.

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In order to show the amount of association and
association in 1957 in the most simplified manner the tables
will be given below, one summarizing the total and individual
associations and the other the Ribes association results. As
the data given in these tables has already been analyzed above,
no further remarks will be made concerning these figures.

State Compensation Paid for Cultivated Ribes Destroyed
During 1923 in the Northeastern States.

Table #64

State	Total No. Cult. Ribes Destroyed	No. Bushes for which comp. paid	Ratio	No. persons paid compensation	Amt. Paid	Average per bush comp.
Maine	12,095	0	0	0	0	0
N. H.	24,779	150	1 to 165	4	37.20	.247
Vt.	1,234	512	1 to 2.4	34	272.02	.53
Mass.	14,887	705	1 to 21	13	243.35	.34
R. I.	1,464	0	-	0	0	0
Conn.	248	0	-	0	0	0
N. Y.	367	124	1 to 3	9	34.65	.28
Totals	55,074	1491	1 to 37	60	\$587.22	.393
Wisc.	0	0	0	0	0	0

During 1923, a total of 55,074 cultivated Ribes were destroyed, however only 60 persons were paid \$587.22 compensation for the loss of 1491 bushes. In Maine, Rhode Island, and Connecticut, no compensation was made although 13,807 bushes were eradicated. A total of 24,779 cultivated Ribes were pulled in New Hampshire, but only \$37.20 compensation was paid to four individuals for loss of 150 bushes. In Massachusetts, 13 persons claimed \$243.35 compensation for loss of 705 Ribes. This money will not be paid until 1924 as a special appropriation has to be made. In 1923, \$59 was expended for bushes destroyed in Massachusetts during 1922. New York paid 9 owners \$34.65 for loss of 124 bushes. The ratio of the number of bushes for which compensation was paid to the total number pulled in each state is as follows: New Hampshire, 1 to 165; Massachusetts, 1 to 21; New York, 1 to 3; and Vermont, 1 to 2.4. The average amount of compensation paid per bush ranged from 24.7 cents in New Hampshire to 53 cents in Vermont, and for all states equaled 39.3 cents. Based on the total number of Ribes destroyed, with and without compensation, one cent per bush was paid in compensation. On the whole, the amount of compensation paid appears to be fair and just. However in the case of New York and Vermont, it would seem that not enough effort had been

State Compensation Paid for Cultivated Rises Destroyed
During 1927 to the Incorporated Cities

City	Total No. of Rises Destroyed	No. of Rises for which Compensation Paid	Ratio	No. of Rises for which Compensation Paid	Amount Paid
Albany	12,095	0	0 to 0	0	0
Buffalo	24,775	155	1 to 155	4	27.50
Chester	1,274	216	1 to 216	24	275.00
Elmira	14,087	709	1 to 21	12	247.32
Geneva	1,424	0	-	0	0
Hammondsport	245	0	-	0	0
Lowville	307	124	1 to 3	9	24.32
Oriskany	22,074	1491	1 to 37	60	257.22
Saratoga Springs	0	0	0	0	0

During 1927, a total of 55,074 cultivated rises were destroyed, however only 60 persons were paid \$247.22 compensation for the loss of 1491 rises. In Albany, Chester, and Lowville, no compensation was made although 15,307 rises were destroyed. A total of 24,775 cultivated rises were paid to four incorporated cities, but only \$27.50 compensation was paid to four incorporated cities for loss of 155 rises. In Buffalo, 155 rises were paid for loss of 24,775 rises. In Chester, 216 rises were paid for loss of 1,274 rises. In Elmira, 709 rises were paid for loss of 14,087 rises. In Geneva, no compensation was paid for loss of 245 rises. In Hammondsport, 9 rises were paid for loss of 307 rises. In Oriskany, 60 rises were paid for loss of 22,074 rises. In Saratoga Springs, no compensation was paid for loss of 0 rises. The ratio of the number of rises destroyed to the number of rises for which compensation was paid is as follows: Albany, 0 to 0; Buffalo, 1 to 155; Chester, 1 to 216; Elmira, 1 to 21; Geneva, 0 to 0; Hammondsport, 0 to 0; Lowville, 1 to 3; Oriskany, 1 to 37; Saratoga Springs, 0 to 0. The average amount of compensation paid per rise ranged from 24.7 cents in Albany to 275 cents in Chester, and for all cities averaged 39.3 cents. Based on the total number of rises destroyed, with and without compensation, one cent per rise was paid in compensation. On the whole, the amount of compensation paid appears to be fair and just. However in the case of New York and Vermont, it would seem that not enough effort had been

Summary of Cooperative Ribes Eradication Work
in Northeastern and Lake States - 1923

Table # 63

State	Acreage	Wild Ribes	Cult. Ribes	Total Cost	Cost per acre	Ribes per acre
N. Y.	*10,025 ** 5,434 15,459	- - 906,617	- - 367	- - \$44,229.78	\$1.54 5.29 2.87	- - 57.3
R. I.	31,308	14,275	1,464	1,895.96	.06	0.45
Conn.	14,062	288,333	248	6,863.14	.488	20.5
Mass.	*198,631 ** 3,300 201,931	1,558,107 218,000 1,776,107	- - 14,887	23,080.92 5,331.00 28,411.92	- - .14	- - 7.8
N. H.	268,237	3,496,733	24,779	51,651.48	.192	13.3
Vt.	25,190	278,570	1,234	8,498.43	.337	11.0
Me.	336,452	1,209,282	12,095	19,333.16	.057	3.6
Wis.	3,347	204,043	0	2,671.98	.798	61.0
Minn.	0	0	0	0	-	-
Grand Totals	895,986	8,173,960	55,074	163,555.85	.182	9.1

* Private land

** State land

made to get people to give their bushes to the state without compensation. The amount of compensation paid per bush in Vermont is apparantly too high, when compared with other states. With a small amount of state money to carry on control work, Vermont should make every effort to reduce to a minimum compensation for Ribes.

made to get people to give their names to the state without
compensation. The amount of compensation paid per bush in
Vermont is apparently too high, when compared with other
states. With a small amount of state money to carry on
control work, Vermont should make every effort to reduce to
a minimum compensation for ripers.

Summary of Total General and Intensive Work Performed Per State by Permanent and Temporary Blister Rust Control Agents
During 1923

Table #65

Table #65

	STATE	Per Man																		Per State			
		MAINE			NEW HAMPSHIRE			MASS.			V T.	R. I.	CONN.	N. Y.	Totals New England and New York			W I S.	Grand Total All states			New England and New York	All states
		Perm. Agents	Temp. Agents	Totals for State	Perm. Agents	Temp. Agt.	Totals for State	Perm. Agents	Temp. Agt.	Totals for State	Totals for State				Perm. Agt.	Temp. Agt.	Total (Both)	Perm. Agt.	Perm. Agt.	Temp. Agt.	Total		
General Work	No. of meetings	91	2	93	322	0	322	85	2	87	42	6	15	157	718	4	722	11	722	4	7	104.1	91.6
	Attendance at meetings	5937	225	4212	14069	0	14069	6019	70	6089	1838	230	367	5794	32354	295	32649	810	33164	295	32459	4644.1	4182.3
	No. of exhibits	76	25	101	240	5	245	52	0	52	69	7	15	93	552	30	582	0	552	30	582	83.1	72.7
	No. of publi- cations	4244	2498	6742	15830	0	15830	11805	227	12032	3038	715	1291	11660	48583	2725	51308	154	48672	2790	51462	7329.7	6432.7
	No. of items published	134	5	139	393	0	393	202	1	203	83	24	66	295	11197	6	1203	0	1197	6	1203	171.8	150.3
	No. of posters placed	369	142	511	2491	87	2578	81	2	83	1260	115	57	1895	6268	231	6499	0	6268	231	6499	928.4	812.3
Intensive Work	No. initial interviews	2102	1764	3866	3681	21	3702	4416	262	4678	735	156	437	1150	12677	2047	14724	45	12722	2047	14769	2103.4	1846.1
	No. follow up calls	408	372	780	1663	0	1663	1537	19	1556	609	89	192	666	5164	391	5555	35	5199	391	5590	793.5	698.7
	Wild Ribes eradication	890	1216	2106	421	0	421	2568	203	2771	228	5	50	318	4480	1419	5899	8	4488	1419	5907	842.7	738.3
	Cult. Ribes erad. only	36	122	158	176	0	176	937	0	937	31	123	18	42	1363	122	1485	0	1363	122	1485	212.1	185.6
	Moral support only	792	461	1253	2902	21	2923	604	1	605	47	28	249	169	4721	482	5274	29	4820	483	5303	753.4	662.8
	Individual	246	666	912	971	5	976	262	6	268	304	21	31	176	2011	677	2688	11	2022	677	2699	384.0	337.3
	Group	37	116	153	178	0	178	27	1	28	94	0	10	76	422	117	539	0	422	117	539	77.0	67.3
	Attendance	119	328	447	2048	0	2048	183	5	188	448	0	301	484	3583	333	3916	0	3583	333	3916	559.4	489.5
	Individual	240	512	752	181	0	181	415	0	415	109	9	19	101	1074	512	1586	7	1081	512	1593	226.5	199.1
	Group	27	77	104	48	0	48	42	0	42	41	0	3	57	218	77	295	0	218	77	295	42.1	35.6
	Attendance	102	223	325	437	0	437	128	0	128	270	0	29	337	1303	223	1526	0	1303	223	1526	218.0	190.7

Educational Work on Cooperative Blister Rust Control during 1923.

The educational phase of the blister rust control work is summarized in the following tables No. to No. made from data compiled at the Boston Office rather than from the annual state B.R.E. 3a.

Total		Male		Female		Total		Male		Female	
No. of cases	No. of deaths	No. of cases	No. of deaths	No. of cases	No. of deaths	No. of cases	No. of deaths	No. of cases	No. of deaths	No. of cases	No. of deaths
100	10	50	5	50	5	100	10	50	5	50	5
200	20	100	10	100	10	200	20	100	10	100	10
300	30	150	15	150	15	300	30	150	15	150	15
400	40	200	20	200	20	400	40	200	20	200	20
500	50	250	25	250	25	500	50	250	25	250	25
600	60	300	30	300	30	600	60	300	30	300	30
700	70	350	35	350	35	700	70	350	35	350	35
800	80	400	40	400	40	800	80	400	40	400	40
900	90	450	45	450	45	900	90	450	45	450	45
1000	100	500	50	500	50	1000	100	500	50	500	50

Table #65 shows that the permanent and temporary blister rust control agents in New England, New York, and Wisconsin during 1923 spoke at 733 meetings attended by 33,459 persons, placed 582 exhibits, distributed 51,462 publications, published 1203 news items and placed 6499 posters. In addition, the agents had 14,769 initial interviews and 5590 follow-up calls. Cooperation promised by individuals was as follows: 5907 persons, wild Ribes eradication; 1485 people cultivated Ribes eradication only; and 5,303 persons gave moral support. Demonstrations of the disease were given to 2,699 individuals and 539 such group demonstrations were attended by 3916 people. Eradication methods were demonstrated to 1593 individuals and 295 such group meetings reached 1526 persons.

Table #65 also shows that except in Maine the temporary agents performed only a small proportion of this work, but in Maine the temporary agents did as much or more of the intensive work than did the permanent men. New Hampshire easily lead all the other states in the amount of general educational work, while New York ranked second. The states rating above the average in the various items are as follows:

Number of meetings.	New Hampshire - New York
Attendance at meetings.	New Hampshire-Massachusetts New York
Number of exhibits.	New Hampshire - Maine- New York
Number of publications	New Hampshire - New York
Number items published.	New Hampshire - New York Massachusetts
Number posters placed.	New Hampshire - New York Vermont

In the amount of intensive educational work performed, Massachusetts ranked first as to number of interviews and cooperation promised, but New Hampshire and Maine led in number of field demonstrations. The states rated above the average in the various items are:

Number of initial interviews. . .	Massachusetts - New Hampshire Maine
Number follow-up calls.	New Hampshire - Massachusetts Maine
Field demonstrations (damage). .	New Hampshire - Maine
" " (control methods). . .	Maine - Massachusetts

Due to the fact that the number of agents varied in the cooperating states, a better comparison is obtained by an analysis of the work done by the average agent per state.

SUMMARY OF AVERAGE GENERAL AND INTENSIVE WORK PERFORMED PER STATE PER BLISTER RUST CONTROL AGENT
(Permanent and Temporary Men) DURING 1923.

Table # 66

STATE			MAINE			N. H.			MASS.			R. I.	VT.	CONN.	N. Y.	NEW ENGLAND & N.Y.			WISC.	ALL STATES				
			Permanent Agents	Temporary Agents	Both	Permanent Agents	Temporary Agent	Both	Permanent Agents	Temporary Agents	Both	Permanent Agents	Permanent Agent	Permanent Agents	Permanent Agents	Temporary Agents	Both	Permanent Agent	Perm. Agents	Temp. Agents	Both			
Average No. Agents			4.1	4.1	8	10		10.1	6	1.4	7.4	1	3.8	2.5	8.1	35.4	5.5	41.1	1	36.4	5.5	42.1		
GENERAL WORK	Number of Meetings		22.7	.4	11.6	32.2		31.8	14.1	1.4	11.7	6.0	11.0	6.0	19.3	20.2	.7	17.5	11.0	20.0	.7	17.4		
	Attendance at Meetings		996.7	54.8	526.5	1406.9		1392.9	1003.1	50.0	822.8	280.0	483.7	231.7	715.3	913.9	53.6	794.3	810.0	911.1	53.6	794.7		
	Number of Exhibits		19.0	6.1	12.6	24.0		24.2	8.6	0.0	7.0	7.0	18.1	6.0	11.4	15.6	5.4	14.1	0.0	15.1	5.4	13.8		
	Number of Publications		1061.0	609.2	842.7	1583.0		1567.3	1967.5	162.1	1625.9	715.0	799.4	516.4	1439.5	1372.1	495.4	1248.3	89.0	1337.1	495.4	1222.3		
	Number of Items Published		33.5	1.2	17.3	39.3		38.9	33.6	.7	27.4	24.0	21.0	26.4	36.4	33.8	1.1	29.2	0.0	32.8	1.1	28.6		
	Number of Posters Placed		92.2	34.6	63.8	249.1		255.2	13.4	1.4	11.2	115.0	331.5	22.8	235.9	177.0	42.0	158.1	0.0	172.2	42.0	154.3		
INTENSIVE WORK	Inter-Coop. Promise	Number of Initial Interviews		525.5	432.4	483.2	368.1		366.5	736.0	187.1	632.1	156.0	193.4	174.8	141.9	358.0	372.1	358.2	45.0	349.4	372.1	350.8	
		Number Follow-up Calls		102.0	90.7	97.5	166.3		164.6	256.1	13.5	210.2	89.0	160.2	76.8	82.2	145.8	71.0	135.1	35.0	142.8	71.0	152.7	
		Wild Ribes Eradication		222.5	296.5	263.2	42.1		41.6	428.0	145.0	374.4	5.0	60.0	20.0	39.2	126.5	258.0	145.5	8.0	123.2	258.0	140.3	
		Cult. Ribes Erad. Only		9.0	29.7	19.7	17.6		17.4	156.1	0.0	126.6	123.0	8.1	7.2	5.1	38.5	22.1	36.1	0.0	37.4	22.1	35.2	
		Moral Support Only		198.0	112.4	156.6	290.6		289.4	100.6	.7	81.7	28.0	12.4	99.6	20.8	135.3	87.8	128.3	29.0	132.4	87.8	125.9	
	Field Dem. Eradication	Individual		61.5	162.4	114.0	97.1		96.6	43.6	4.3	36.2	21.0	80.0	12.4	21.6	56.8	123.1	65.4	110.0	55.5	123.1	61.7	
		Group	Number		9.2	28.3	19.1	17.8		17.6	4.5	.7	3.7	23.7	24.7	4.0	9.3	11.9	21.2	13.1	0.0	11.6	21.2	12.8
			Attendance		29.7	80.0	55.8	204.8		202.7	30.5	3.5	25.4	-	117.9	120.4	59.7	101.2	60.5	95.2	0.0	98.4	60.5	92.9
		Group	Individual		60.0	124.8	94.0	18.1		17.9	69.1	0.0	56.0	9.0	28.6	12.4	30.3	93.1	38.6	7.0	29.7	93.1	37.8	
			NUMBER		6.7	18.7	13.0	4.8		4.7	7.0	0.0	5.6	-	10.7	1.2	7.0	6.1	14.0	7.0	0.0	15.0	14.0	7.0
Attendance		25.5	54.4	40.6	43.7		43.2	21.3	0.0	17.3	-	71.0	11.6	41.6	36.8	40.5	37.1	0.0	35.8	40.5	36.2			

No Average figure for Temporary agent (one agent worked one month)

In the above table in order to obtain an average per agent, the total state figures were divided by the average number of agents employed during the year. This average number was weighted according to the length of time each agent worked. At the head of each column the average weighted number

of agents employed is given, as for example, ($\div 4$) meaning 4 agents. In analyzing the results obtained per man, we will consider only the permanent agents. The table shows that an average of 35.4 permanent blister rust control agents, each averaged during the year 20.2 talks at meetings attended by 913.9 persons, placed 15.6 exhibits, distributed 1372.1 publications, published 33.8 news items and placed 177 posters. In addition each of these agents averaged 358 initial interviews and 145.8 follow up calls which resulted in promised cooperation as follows: 126.5 persons promised to eradicate wild Ribes, 38.5 to destroy their cultivated Ribes, and 135.3 gave moral support. Demonstrations of damage were given to 56.8 individuals and 11.9 such group demonstrations were attended by 101.2 persons. Demonstrations of control methods were made to 30.3 individuals and 6.1 such group field meetings reached 36.8 people.

The two following tables show the range between the lowest and highest state averages per permanent agent per year, also a list of those states whose agents rate above the yearly average. In addition the yearly results of the average permanent agent is reduced to a monthly basis.

SUMMARY OF 1923 GENERAL EDUCATIONAL WORK IN NEW ENGLAND AND NEW YORK.

67
Table #17-

General Educational Features	No For all Permanent Agents	Yearly No. for Ave. Permanent Agent	Monthly No. for Ave. Permanent Agent	Lowest State Ave. per Permanent Agent per Year	Highest State Ave. per Permanent Agent per Year	States Whose Agents Rate Above Average
Meetings	718	20.2	1.7	6.0	32.3	states Me. & N.H. (2 out of 7)
Exhibits	552	15.6	1.3	6.0	24.0	(3 out of 7 states) Me., N.H., Vt.
Publications	48,583	1,372.1	114.3	516.0	1,583.0	N.Y., Mass., N.H. "
Items Published	1,197	33.8	2.8	21.8	39.3	(2 out of 7 states) N.Y., & N.H.
Posters Placed	6,268	177.0	14.7	13.4	331.5	(3 out of 7 states) N.Y., Vt., N.H.

Tables #66+67 show a rather a low monthly average per blister rust control agent in the various general educational items, and a wide yearly range in the amount and kind of such work. Some states are emphasizing one thing and some another, other states are weak in most of the various phases of the general educational work. This latter statement is especially true of Rhode Island, Connecticut, Vermont and Massachusetts. More exhibits are needed in New York. Maine is weak in posters; Massachusetts is below the average in talks at meetings, exhibits, and posters; while Vermont needs additional talks at meetings, more publications distributed, and items published. Connecticut and Rhode Island need to boost up all phases of this work.

An analysis of the work of individual agents is even more striking. For instance, one Vermont agent during the year had no exhibits, another only two meetings, while King in New Hampshire had 74 meetings, placed 63 exhibits, had 444 initial interviews, and 134 follow-up calls, obtained about \$12000 town and individual money and supervised from 6-11 crews during the field season. Admittedly conditions vary in the different states, but it is very doubtful if there should be such a wide range in the amount of general educational work done by the agents. As brought out under the discussion of weaknesses by states, this work will be better organized and definite plans developed so as to avoid hit or miss efforts. The specialists will aid in organizing and developing this work as shown under the specialist plan of work. The state and federal offices will also follow up the agents leads with a series of letters, etc., which will make it easier for the agents to get definite results.

Summary 1923 Intensive Educational Work in New England and New York

#68
Table #18

Intensive Educational Features	No. for all Permanent Agents	Yearly No. for ave. permanent Agent	Ave. No. per working day for Ave. Permanent Agent	Lowest state Ave. per Perm. Agt. per year	Highest state Ave. per Perm. Agt. per year	States whose Agents rate above average
Initial Interviews	12,677	358.0	1.2	141.9	736.0	(3 out of 7 states) Mass., Me., N.H.
Follow-up Calls	5164	145.8	.5	76.8	256.1	" Mass., N.H., Vt.
Disease & Damage Dem.	2433	68.7	.2	16.4	115.8	" N.H., Vt., Me.
Attendance	5594	158.3	-	21.0	301.9	(2 out of 7 states) N.H. & Vt.
Control Meth. Demonstrations	1292	36.4	.1	8.8	76.1	(3 out of 7 states) Mass., Me., Vt.
Attendance	2377	67.1	-	9.0	99.6	" Vt., Mass., Me.

#66 68

Tables ~~#16~~ and ~~18~~ show a surprising low daily average in the number of interviews and demonstrations, and a wide range in the amount of intensive educational work done by the permanent agents in the various states. Due to varying conditions there is sure to be a difference in the amount of such work, but this table indicates too wide a range and too low a daily average. In Maine about half of the intensive educational work is being done by the temporary agents. More of this work should be performed by the permanent men and less by the temporary agents. Additional demonstrations are needed. New Hampshire is weak in obtaining cooperation from pine owners in eradication work and in giving demonstrations of control methods, while Massachusetts also needs additional demonstrations of both damage and control measures. Vermont is below the average in number of interviews, follow up calls and cooperation promised, while Connecticut and New York and Rhode Island rate below the average in all phases of the intensive educational work.

The intensive work will be speeded up in all states in the following ways:

1. Better planning and organizing the work so more people can be seen per day.
2. Greater use of group meetings and demonstrations.
3. Eliminate hit and jump work and excess travel and decrease lost motion.
4. More of the agents time will be made available for intensive educational work by:
 - (a) better organization of all the agents other duties.
 - (b) more assistance from the specialists.
 - (c) decrease in the amount of scouting, especially in sections where there is already a fairly good understanding of pine, Ribes, and infection conditions.

Table # 69

STATE	MAINE		N. H.		VT.	MASS.		CONN.	R. I.	N. Y.	Totals for New Eng. & N.Y. Perm. Agents	WISC.	Totals for Permanent Agents	Totals for Temporary Agents	Grand Total
Project	Perm. Agents	Temp. Agents	Perman- ent Agents	Tempor- ary Agents	Permanent Agents	Perman- ent Agents	Tempor- ary Agents	Permanent Agents	Permanent Agents	Permanent Agents		Permanent Agent			
Office	1530	415 $\frac{1}{2}$	3578	8	725 $\frac{1}{2}$	2442 $\frac{1}{2}$	636	856 $\frac{1}{2}$	265	2073	11,470 $\frac{1}{2}$	828	12,298 $\frac{1}{2}$	1,059 $\frac{1}{2}$	13,358
Supervision	2241	931 $\frac{1}{2}$	3390 $\frac{1}{2}$	1	1639 $\frac{1}{2}$	2120 $\frac{1}{2}$	-	181 $\frac{1}{2}$	297	993 $\frac{3}{4}$	10,863 $\frac{1}{2}$	113	10,976 $\frac{1}{2}$	932 $\frac{1}{2}$	11,909
Eradication	109	207	224 $\frac{1}{2}$	-	22	118	4	4	8	193 $\frac{1}{2}$	679 $\frac{1}{2}$	8 $\frac{1}{2}$	687 $\frac{3}{4}$	207	894 $\frac{3}{4}$
Mapping	7	33	206 $\frac{1}{2}$	-	34	129 $\frac{1}{2}$	74	19	-	383	779	45	824	107	931
Scouting	674	4504	2198 $\frac{1}{2}$	102	879	705	305 $\frac{1}{2}$	1597 $\frac{1}{2}$	125	2242 $\frac{1}{2}$	8420 $\frac{5}{6}$	161 $\frac{1}{2}$	8,582 $\frac{1}{3}$	4,911 $\frac{1}{2}$	13,493 $\frac{5}{6}$
Educational	1742	1711	4920 $\frac{1}{2}$	42	2598 $\frac{1}{2}$	3134 $\frac{1}{2}$	124	570 $\frac{1}{2}$	501	5270 $\frac{3}{4}$	18,737 $\frac{1}{2}$	16	18,753 $\frac{1}{2}$	1,877	20,630 $\frac{1}{2}$
Travel	1019	366	5197 $\frac{1}{2}$	60	507	2658 $\frac{1}{2}$	117 $\frac{1}{2}$	491	635	3807 $\frac{3}{4}$	14,315 $\frac{1}{2}$	382 $\frac{1}{2}$	14,698	483 $\frac{1}{2}$	15,181 $\frac{1}{2}$
Misc.	13	27	207	-	59	12	8	55	-	577	923	-	923	35	958
Total Hours	7335	8135	19922 $\frac{1}{12}$	213	6464 $\frac{1}{2}$	11320 $\frac{1}{2}$	1264 $\frac{3}{4}$	3775	1831	15541	66,188 $\frac{5}{6}$	1554 $\frac{1}{2}$	67,743 $\frac{1}{3}$	9,612 $\frac{3}{4}$	77,356 $\frac{1}{12}$

Hours Worked by Blister Rust Control AgentsPeriod - May - December 1923.Summary of Hours by Projects Worked By Permanent and Temporary Blister Rust Agents During Period - May - December 1923.

State	Permanent Agents	Temporary Agents	Total	Permanent Agents	Temporary Agents	Total
Alaska	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Arizona	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
California	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Colorado	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Idaho	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Montana	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Nebraska	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Nevada	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
New Mexico	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Oregon	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Utah	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Washington	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Wyoming	1,000.00	1,000.00	2,000.00	1,000.00	1,000.00	2,000.00
Total	10,000.00	10,000.00	20,000.00	10,000.00	10,000.00	20,000.00

Table # 69 is given merely as a record of the agents hours worked by projects, and to show the basis for the following summary of hours worked by the average permanent blister rust control agent in the various states. To obtain such figures, in each case, the total hours worked by all the permanent agents in a state was divided by the average weighted number of permanent agents in that state. The number of permanent agents is weighted according to the length of time each agent worked during the period May - December 1923. The best comparison of the hours worked by the agents can be obtained by a study of the percent of time spent on the projects by the average permanent agents in each state. The following table shows this information in detail.

SUMMARY OF HOURS WORKED BY AVERAGE PERMANENT BLISTER RUST CONTROL AGENTS
DURING PERIOD May-December, 1923.

Table # 70

State	Ave. Weighted No. Perm. Agents	Hours Worked by Projects---Ave. Permanent Agent								Totals Hours per Ave. Perm. Agent	% of Time by Projects							
		Office	Super- vision	Trad- ication	Mapping	Scouting	Educa- tion	Travel	Misc.		Office	Super- vision	Trad- ication	Mapping	Scout- ing	Educa- tion	Travel	Misc.
Maine	4.0	382.5	560.2	27.2	1.7	168.5	435.5	254.7	3.2	1835.7	20.9	30.5	1.5	.1	9.2	23.7	13.9	.2
N. H.	10.0	357.8	339.0	22.4	20.6	219.8	492.0	519.7	20.7	1992.2	17.9	17.0	1.1	1.0	11.0	24.7	26.1	1.0
Vt.	3.7	196.0	443.1	5.9	9.1	237.5	702.3	137.0	15.9	1747.1	11.2	25.2	.3	.5	13.5	40.2	7.8	.9
Mass.	6.0	407.0	353.4	19.6	21.5	117.5	522.3	443.0	2.0	1886.7	21.6	18.7	1.0	1.1	6.3	27.5	23.5	.1
R. I.	1.0	265.0	297.0	8.0	-	127.0	501.0	635.0	-	1831.0	14.5	16.3	.4	-	6.9	27.3	34.6	-
Conn.	2.4	356.8	75.6	1.6	7.9	665.6	237.7	204.5	22.9	1572.9	22.7	4.8	.1	.5	42.3	15.1	13.0	1.5
N. Y.	8.9	232.9	111.6	21.7	43.0	251.9	592.2	427.8	64.8	1746.1	13.3	6.4	1.3	2.5	14.4	33.9	24.5	3.7
N.Y.&New England	36.0	318.6	301.7	18.8	21.6	233.9	520.4	397.6	25.6	1838.5	17.3	16.4	1.0	1.2	12.7	28.4	21.6	1.4
Wisc.	1.0	828.0	113.0	8.5	45.0	161.5	16.0	382.5	-	1554.5	53.3	7.3	.5	2.9	10.4	1.0	24.6	-
All States	37.0	332.3	296.6	18.5	22.2	231.9	506.8	396.1	24.9	1830.9	18.1	16.2	1.0	1.2	12.7	27.7	21.6	1.3

STATE DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

REPORT OF THE
COMMISSIONER OF PLANT INDUSTRY
FOR THE YEAR 1927

Table 1 is given merely as a record of the agents
being worked by projects, and to show the basis for the following
summary of work worked by the average permanent district agent
during the year in the various states. To obtain these figures
in each case, the total hours worked by all the permanent agents
in a state are divided by the average weighted number of per-
manent agents in that state. The number of permanent agents
is weighted according to the length of time each agent worked
during the period May - December 1927. The total population of
the agents worked by the agents can be obtained by a study of
the percent of time spent on the projects of the average per-
manent agents in each state. The following table shows this
information in detail.

1

1

The above table shows the average permanent blister rust control agents time was spent on projects as follows:
(1) Education, 28.4%; (2) travel, 21.6%; (3) office, 17.3%;
(4) supervision, 16.4%; (5) scouting, 12.7%; (6) Miscellaneous, 1.4%; (7) mapping, 1.2%; (8) Eradication, 1.%. The range

In analyzing this table I will compare my results to New England and New York. One should keep in mind that this data is only for an eight month period, May - December, or during the field season of the year. No definite figures are available for the period January - April 1983.

The above table shows the average permanent distance that control points line was found on (meters) as follows:
 (1) Station, 2.5m; (2) Forest, 21.5m; (3) Field, 17.5m;
 (4) Observation, 15.5m; (5) Association, 13.5m; (6) Miscellaneous, 1.5m. The range

in the proportion of time spent by the average agent on these projects in the various states is as follows: Education (15.1% in Connecticut to 40.2% in Vermont); travel (7.8% in Vermont to 26.1% in New Hampshire and 34.6% in Rhode Island); Office (11.2% in Vermont to 22.7% in Connecticut); supervision (4.8% in Connecticut to 30.5% in Maine); scouting (6.3% in Massachusetts to 42.3% in Connecticut); Miscellaneous (none in Rhode Island to 3.7% in New York); Mapping (none in Rhode Island to 2.5% in New York) and eradication (.3% in Vermont to 1.5% in Maine). Due to varying state conditions and questionable hours reported by some of the agents, it is difficult to make definite statements regarding the agents hours. However the following points are brought out by the above table.

1. As May - December was the field season, apparantly too much of the agents time was spent in the office, especially in Connecticut, Massachusetts and Maine.

2. Nearly 1/3 of the permanent agents time in Maine was spent on supervision. As the temporary agents supervised most of the work done by the town foremen, it appears that more of the permanent agents time could be given to educational and checking work and less to supervision of a few men who are qualified to carry on their work without much assistance.

3. The New York agents gave entirely too little supervision to the eradication work. More supervision of crews and scouts is also needed in New Hampshire and Massachusetts. The low supervision figure for Connecticut is due to only one agent having men employed on eradication work.

4. In all the states very little time was used on projects Eradication, mapping and miscellaneous. This is as it should be. However the New York agents spent too much time on Miscellaneous and Mapping work. In Maine the temporary agents spent most of their hours on Ribes scouting (eradication) but this is not shown on the table as only permanent agents are included.

5. In states with little infection as in Rhode Island and Massachusetts, scouting is needed, but in these states the agents did very little such work. In New York and Vermont where there is heavy infection, too much scouting was done. The high scouting figures in Connecticut are due to two agents confining nearly all of their time to scouting.

6. The amount of time spent on educational work, as a whole, is inadequate especially in Maine, New Hampshire, and Connecticut.

in the preparation of the report of the various agents in
these projects in the various states is as follows: (1) in
(1) in Connecticut to 40.24 in Vermont; (2) in
Vermont to 25.12 in New Hampshire and 21.12 in Maine;
Ohio (1) in Vermont to 27.72 in Connecticut; (2) in
19.22 in Connecticut to 30.22 in Maine; (3) in
Massachusetts to 28.22 in Connecticut; (4) in
in Rhode Island to 1.12 in New York; (5) in New
Hampshire to 2.22 in New York; (6) in Vermont
to 1.22 in Maine. The following table contains
questionnaire forms reported by some of the agents, it is
difficult to make definite statements regarding the agents
data. However the following points are stated only
the above table.

1. In May - December was the first season, especially
for much of the agents time was spent in the office, and
especially in Connecticut, Massachusetts and Maine.
2. Nearly 1/2 of the personnel agents time in New York was
spent on investigation. In the majority agents' experience
most of the work done by the New York agents, it appears that
some of the personnel agents time could be given to administrative
and checking work and less to investigation of a few men who
are qualified to carry on their work with more efficiency.
3. The New York agents gave entirely too little atten-
tion to the investigation work. More attention of these
and agents is also needed in New Hampshire and Massachusetts.
The New investigation figure for Connecticut is due to only one
agent having been assigned on investigation work.
4. In all the states very little time was spent on projects
investigation, working and miscellaneous. This is as it should
be. However the New York agents would not spend time on
investigation and working work. In Maine the majority agents
spent most of their time on Rhode Island (investigation) but
this is not shown on the table as only permanent agents are
included.
5. In states with little information as in Rhode Island
and Massachusetts, working is needed, but in those states
the agents did very little such work. In New York and Ver-
mont where there is heavy information, too much working was
done. The high working figures in Connecticut are due to
two agents conducting nearly all of their time to working.
6. The amount of time spent on administrative work, as
a whole, is inadequate especially in Maine, New Hampshire,
and Connecticut.

7. Travel is excessively high in Rhode Island, over 1/3 of the agents time being spent on this project: - the amount of time spent on travel in New Hampshire, New York and Massachusetts appears to be excessive.

8. The total amount of time expended on all projects by the average permanent agent was 1835 hours, or 230 hours per month or an average of almost nine hours for each working day.

7. Travel is necessarily high in Rhode Island, over 1/2 of the agents time being spent in this project - the amount of time spent on travel in New Hampshire, New York and Massachusetts appears to be excessive.

8. The total amount of time expended on all projects by the average agent was 15 1/2 hours, or 2 1/2 hours per month or an average of about nine hours for each working day.

Number of Men Employed on Blister Rust Control Work by Classes in Northeastern States During 1923. (Regardless of Length of Time each worked)

Table# 71

State	State Leader & Asst.	Permanent Blister Rust Control Agents	Temporary Blister Rust Control Agents	State Checkers	State Foremen	State Scouts	State Laborers & Linemen	Owners Labor	Total For State
Me.	1	5	14	-	49 (Town Foremen)	Scouting By Temp. Agts.	-	1832	1901
N.H.	2	(10 Max. at one 12 Time)	-	2	41	28	281	-	366
Vt.	1	4	-	-	17	2	129	105	258
Mass.	1	(6Max. at one 8 Time)	6	1	29	Foremen also used as scots.	17	622	761
R. I.	1	1	-	-	-	4	-	38 Cult. Ribes	44
Conn.	1	3	-	-	5	-	20	7	36
N. Y.	2	(8 Max. at one 12 Time)	-	5	24	-	117	60	220
TOTALS	9	45	20	8	165	34	564	2741	3586
Wisc.	1	1	1	-	2	-	12	30 (Est.)	47
Minn.	0	2	-	-	-	-	-	-	2
GRAND TOTALS	10	48	21	8	167	34	576	2771	3635

Additional Men Employed

State Supervisors-----	N. Y. ---2	3
Dr. Shell-----	-----1	
Federal Employees (Perm. & Temp. working in or from Boston Office-----)	-----9	
Federal men employed on demonstration areas: North Hudson-----	-----7	23
Man Galle-----	-----7	
Total		26

TOTAL STATE & FEDERAL MEN-----890
 OWNERS LABOR-----2771
 TOTAL MEN USED-----3661

Journal of the United States Geological Survey Washington, D. C.

Date		Locality		Description		Remarks	
1891	July 1	1	1	1	1	1	1
1891	July 2	1	1	1	1	1	1
1891	July 3	1	1	1	1	1	1
1891	July 4	1	1	1	1	1	1
1891	July 5	1	1	1	1	1	1
1891	July 6	1	1	1	1	1	1
1891	July 7	1	1	1	1	1	1
1891	July 8	1	1	1	1	1	1
1891	July 9	1	1	1	1	1	1
1891	July 10	1	1	1	1	1	1
1891	July 11	1	1	1	1	1	1
1891	July 12	1	1	1	1	1	1
1891	July 13	1	1	1	1	1	1
1891	July 14	1	1	1	1	1	1
1891	July 15	1	1	1	1	1	1
1891	July 16	1	1	1	1	1	1
1891	July 17	1	1	1	1	1	1
1891	July 18	1	1	1	1	1	1
1891	July 19	1	1	1	1	1	1
1891	July 20	1	1	1	1	1	1
1891	July 21	1	1	1	1	1	1
1891	July 22	1	1	1	1	1	1
1891	July 23	1	1	1	1	1	1
1891	July 24	1	1	1	1	1	1
1891	July 25	1	1	1	1	1	1
1891	July 26	1	1	1	1	1	1
1891	July 27	1	1	1	1	1	1
1891	July 28	1	1	1	1	1	1
1891	July 29	1	1	1	1	1	1
1891	July 30	1	1	1	1	1	1

U. S. GEOLOGICAL SURVEY
WASHINGTON, D. C.

The following is a list of the names of the persons who have been employed by the United States Geological Survey during the year 1891. The names are arranged in alphabetical order.

Adams, J. H.
 Allen, J. B.
 Anderson, J. C.
 Baker, J. D.
 Baldwin, J. E.
 Barnes, J. F.
 Bates, J. G.
 Beaman, J. H.
 Bell, J. I.
 Bell, J. J.
 Bell, J. K.
 Bell, J. L.
 Bell, J. M.
 Bell, J. N.
 Bell, J. O.
 Bell, J. P.
 Bell, J. Q.
 Bell, J. R.
 Bell, J. S.
 Bell, J. T.
 Bell, J. U.
 Bell, J. V.
 Bell, J. W.
 Bell, J. X.
 Bell, J. Y.
 Bell, J. Z.

Analysis of Table # 7/ - Men employed on Blister Rust Control Work in 1923 in Northeastern States.

During 1923, a total of 890 state and federal men were employed on blister rust control work in the Northeastern and Lake States. In addition, 2771 individuals (pine or Ribes owners or their employers) actually assisted in eradicating Ribes. This 3661 persons participated in the control work. Of the total 2696 persons who cooperated in Ribes eradication, the majority of these are included in the 2771 individuals listed above as having actual contact with the work. However, a few hundred of the cooperators paid for the work on their lands, but took no active part in pulling the bushes. Estimating conservatively, 4000 persons had more or less of an active part in the control work. Of the 2771 individuals (Owners labor) assisting in the work, 66.1% were located in Maine and 25.2% in Massachusetts. Thus, the pine owners in the other states took very little personal active part in the pulling of the bushes, except in Vermont where almost half of the total men engaged in the control work were classified as owners labor, but this figure is only 3.7% of the total number of such persons. New Hampshire had a force of 352 men on the state payrolls during the eradication season while Vermont employed 148 and New York 150 men. Although the Vermont men were paid from state funds, later the cooperating pine owners reimbursed the state for the bulk of such expenditures.

A total of nine state leaders or assistant leaders were employed on federal funds and one (York) on state money. In addition, 69 blister rust control agents were used during the year, 21% of these men having temporary appointment. At no one time did the permanent blister rust control agents number more than 36 men. All such agents and the state leaders were paid from federal funds, except four temporary men in Maine. In addition, a federal force of 23 men were employed, 14 of whom worked temporarily on experimental projects at Eau Galle and North Hudson, four as temporary or permanent assistants at the Boston Office and five as field men directed from the Boston Office. Thus, during the year 1923, 97 men held federal appointments, 793 were paid from state funds (includes 148 men in Vermont whose wages were later refunded to state by cooperators) and 2771 men were classed as owners labor and paid by the cooperators, or a grand total of 3661 men actually participated in the control work.

This analysis shows the need of a state checker in Maine, also additional permanent blister rust control agents in New York and possibly one in Massachusetts and the need of scouts in Connecticut. The states of New York, Connecticut and Rhode Island and New Hampshire will make greater efforts to get pine owners to take a more active part in the control work.

Analysis of Table 4 - Men employed on lobster gear control work in 1937 in Northern Maine.

During 1937, a total of 893 Maine and Federal men were employed on lobster gear control work in the Northwestern and Lake States. In addition, 277 individuals (pine or white owners or their employees) actually assisted in establishing this 1937 persons participated in the control work. Of the total 1170 persons who cooperated in lobster eradication, the majority of these are included in the 277 individuals listed above as having actual contact with the work. However, a few hundred of the cooperators paid for the work on their lands, but took no active part in pulling the buoys. Both making conservatively, 4000 persons and some or less of an active part in the control work. Of the 277 individuals (Owner Labor) assisting in the work, 26.1% were located in Maine and 25.2% in Massachusetts. The other owners in the other states took very little personal active part in the pulling of the buoys, except in Vermont where almost half of the total men engaged in the control work were classified as owner labor, but this figure is only 5.7% of the total number of men persons. New Hampshire had a force of 352 men on the state payroll during the eradication season while Vermont employed 143 and New York 120 men. Although the Vermont men were paid from state funds, later the cooperating pine owners reimbursed the state for the bulk of such expenditures.

A total of nine state leaders or assistant leaders were employed on Federal funds and one (York) on state money. In addition, 29 district and county agents were used during the year, 212 of these men having temporary appointment. At no one time did the permanent district and county agents number more than 36 men. All state agents and the state leaders were paid from Federal funds, except four temporary men in Maine. In addition, a Federal force of 25 men were employed, 14 of whom worked temporarily on experimental projects at Eastville and North Andover, four as temporary or permanent assistants at the Boston Office and five as men directed from the Boston Office. Thus, during the year 1937, 27 men held Federal appointments, 793 were paid from state funds (included 143 men in Vermont whose wages were later returned to state by cooperators) and 277 men were classified as owner labor and paid by the cooperators, or a grand total of 1170 men actually participated in the control work.

This analysis shows the need of a state cooperator in Maine, also additional permanent district and control agents in New York and possibly one in Massachusetts and the need of agents in Connecticut. The states of New York, Connecticut and Rhode Island and New Hampshire will have greater efforts to get pine owners to take a more active part in the control work.

Classification of Wages Paid to Cooperative Blister Rust Control Personnel
in Northeastern States During 1923.

Table # 72

State	State Leader per Month	Rate Salary Permanent Agents--per Month			Rate Salary Temporary Agents--Per Month		Wages State Checker	Wages State Foremen per Hour	Wages State Scouts per Hour	Wages State Linemen Per Hour	Wages State Laborers per Hour	Owners Labor per Hour
		Min.	Max.	Ave.	Min.	Max. Ave.						
Maine	\$200. & Bonus 183.34	\$125.	\$145.	\$140.	\$100.	\$125.	-	45¢	-	-	-	40¢
N. H.	& Bonus Assistant \$7. per Day-WAE.	120.	170.	143.	Only one such agent	\$105.	\$105. per Mo.	43¢ to 56¢	43¢ to 56¢	39¢ to 45¢	37¢ to 43¢	39¢
Vt.	*166.67 & Bonus	125.	145.	138.	Only one such Agent	100.	-	45¢-55¢	50¢-55¢	-	30¢-40¢	25¢-38¢
Mass.	188.34 & Bonus	130.	150.	139.	\$4.-\$4.50 per day--W.A.E.	-	130. per mo.	48¢-50¢	48¢-50¢	-	45¢-50¢	50¢
R. I.	*145.00	-	-	-	-	-	-	-	48¢	-	-	48¢
Conn.	*145.00	100.	125.	112.	-	-	-	\$60-100 per Mo. & Board	-	-	\$2.75 per Day and Board	-
N. Y.	188.34	125.	140.	131.	-	-	50¢ per Hour	\$3.50-\$4 per Day & Board	-	\$2.48 per Day with Board-\$3.20 Without	\$2.48 per Day With Board-\$3.20 Without	Same as State Labor
Range New Eng. & N.Y.	145.00 to 200.00	100. to 130.	125. to 170.	112. to 143.	-	-	\$105. to 130. per Mo.	43¢ to 56¢	43¢ to 56¢	39¢ to 45¢	30¢ to 50¢	25¢ to 48¢
Wisc.	183.34	-	-	-	-	-	-	48¢	-	44¢	44¢	44¢

* Riley and Anderson received salary increases of \$20 per month Jan. 1, 1924.
** Hiccock received additional salary from state.

Blister Rust Control Expenditures - 1923.

The blister rust control expenditures during the calendar year 1923 will be summarized by a series of tables as follows:

State and Federal Cooperative Blister Rust Control Funds Used During Calendar Year 1923 in North Eastern and Lake States - (All Projects)

Table No. ⁷³~~10~~

Source of Funds	State Appropriation		Nursery Funds		Town Appropriations		Individual Funds or Labor		All Others		Total State Funds	Total Federal Funds	Fed. Funds Total State & Fed. Funds	Total State & Fed. Funds
	Amt.	% of Total State Funds	Amt.	% of Total State Funds	Amt. Spent	% of Total State Funds	Amt.	% of Total State Funds	Amt.	% of Total State Funds				
Maine	\$6290.71	28.0	\$500.00	2.2	\$6899.99	30.7	\$8760.34	39.0	-	-	22451.04	15301.00	40.5	37752.04
N. H.	16512.88	29.0	-	-	32742.13	57.6	7635.45	13.4	-	-	56890.46	33181.82	36.8	90072.28
Vt.	3033.35	30.0	-	-	-	-	7247.34	70.0	-	-	10280.69	12203.64	54.2	22484.33
Mass.	17862.05	71.9	-	-	-	-	6894.90	27.7	80.10	.3	24837.05	23327.44	48.4	48164.49
R. I.	2177.18	74.5	-	-	-	-	15.36	.5	728.00	24.9	2920.54	2795.76	48.9	5716.30
Conn.	9397.88	87.3	-	-	497.99	4.6	867.45	8.1	-	-	10763.32	6867.42	38.9	17626.74
N. Y.	57795.76	85.8	-	-	-	-	9548.63	14.2	-	-	67344.39	25135.41	27.1	92479.80
Totals	113069.81	57.8	\$500.00	.2	40140.11	20.6	40969.47	20.9	818.10	.4	195487.49	11808.49	37.7	314295.98
Wisc.	1381.71	42.1	995.36	30.3	-	-	603.75	18.4	300.00	9.1	3280.85	3525.84	51.8	6806.69
Minn.	894.72	28.8	2202.40	71.2	-	-	-	-	-	-	3097.12	3080.62	49.8	6177.74
Grand Totals	115346.24	57.1	3697.76	1.8	40140.11	19.8	41573.22	20.5	1118.10	.5	201865.46	25414.95	38.3	327280.41

Table # 73 shows that in three of the states (Maine, New Hampshire and Vermont) the individuals and towns are paying over 70% of the entire state cost of the control work, while in the other four northeastern states the state departments are paying from 72-87 percent of the entire state costs. Conditions in these four states make this high state cost more or less necessary. In Rhode Island and Massachusetts the high state cost is due to the state paying for the scout work, and the scarcity of Ribes areas of sufficient size to require crew work, which would be paid for by individuals. The small amount of cooperative funds in Connecticut is offset by a greater town expenditure during 1922, also in 1924 the towns will expend more than the state on the control areas. In New York, the bulk of the eradication work being done on state owned land has produced a high state expense. Based on the totals for all states, the state departments are paying \$115,346.24 or 57.1% of the entire state costs, while other state cooperators pay in the following proportion: Individuals \$41,573.22 or 20.5%, towns \$40,140.11 or 19.8%, nursery funds \$3697.76 or 1.8%, all other funds \$1118.10 or .5%. Only three states (Maine, New Hampshire and Connecticut) received town appropriations, \$1.3% of these funds being raised in New Hampshire, but all states had individual cooperation, the amount varying from \$15.36 in Rhode Island to \$9548.63 in New York. The states and their cooperators expended a total of \$201,865.46 while the Government spent \$125,414.95 on cooperative control work, or a total expenditure for all states and the Government of \$327,280.41. The percent of federal funds spent in the various states to the total state and federal expenditures ranges from 27.1% in New York to 54.2% in Vermont, and for all states amounts to 38.3%. The low percentage in New York is due to the large amount of work on state owned lands, the cost of which the Government does not offset on a dollar for dollar basis. More federal money was expended in New Hampshire than in any other state, yet the federal expenditures amounted to only 36.8% of the total amount of control money spent in this state.

Briefly this analysis shows that all the states except Maine, New Hampshire and Vermont should shift more of the burden of control work on to the towns and individuals. New Hampshire should also get additional cooperation from individuals, in order to make the pine owners bear a heavier share of the costs, also if New Hampshire is to complete its program within the eight year period additional cooperation must be obtained. Maine must strive for increased state, town and individual money in order to complete its control work. Although New York obtained the largest amount of individual cooperative money in 1923, yet it must greatly in-

STATE AND FEDERAL COOPERATIVE BLISTER RUST CONTROL EXPENDITURES BY PROJECTS DURING CALENDAR YEAR 1923
In Those State Where Ribes Eradication Work was Performed.

Table# 74

STATE		MAINE	N. H.	VT.	MASS.	R. I.	CONN.	N. Y.	TOTALS NEW ENG. & N. Y.	WISC.	TOTALS ALL STATES
Wages & Expenses Paid for Super- vision	Amt. Paid by State	\$2043.38	\$2958.41	\$898.78	\$1359.92	\$420.00	\$1053.89	\$3581.77	\$12,316.15	\$266.90	\$12,583.05
	" " " Govt.	2374.17	3912.19	2176.74	2143.78	930.39	1385.51	2131.89	15,054.67	1943.68	16,998.35
	Total Amt. Paid	4417.55	6870.60	3075.52	3503.70	1350.39	2439.40	5713.66	27,370.82	2210.58	29,581.40
	% Super. Paid by State	46.3	43.4	29.2	38.8	31.1	43.2	62.7	45.0	12.1	42.6
	" " " " Govt.	53.7	56.6	70.8	61.2	68.9	56.8	37.3	55.0	87.9	57.4
	% of Total State Exp. Paid for Supervision	9.1	5.2	8.7	5.5	14.4	9.8	5.3	6.3	8.2	6.3
	% of Total Govt. Exp. Paid for Supervision	15.3	11.8	17.8	9.1	33.2	20.2	8.5	12.7	55.1	13.9
Ribes Eradica- tion	% of Total Cost of Super. in State to Total Exp. all Projects in State	11.7	7.6	13.6	7.2	23.6	13.8	6.1	8.7		
	Amt. Paid by State	16,520.63	51,651.48	8498.43	23,080.92	1895.96	6863.14	44,229.78	152,740.34	2671.98	155,412.32
	" " " Govt.	2,812.53	-	-	-	-	-	-	2,812.53	-	2,812.53
	Total Amt. Paid	19,333.16	51,651.48	8498.43	23,080.92	1895.96	6863.14	44,229.78	155,552.87	2671.98	158,224.85
	% Erad. Paid by State	85.4	100.0	100.0	100.0	100.0	100.0	100.0	98.2	100.0	98.3
	" " " " Govt.	14.6	-	-	-	-	-	-	1.8	-	1.7
	% Total State Expenditures Paid for Eradication	73.6	90.8	82.7	92.9	64.9	63.7	65.7	78.1	81.4	78.3
Educa- tion	% Total Govt. Expenditures Paid for Eradication	18.4	-	-	-	-	-	-	2.4	-	2.3
	Amt. Paid by State	2,914.02	202.33	533.84	262.22	346.58	15.50	4,499.63	8,774.12	7.55	8,781.67
	" " " Govt.	10,114.30	29,269.63	10,026.90	21,183.66	1,865.37	5,477.91	23,003.52	100,941.29	1582.16	102,523.45
	Total Amt. Paid	13,028.32	29,471.96	10,560.74	21,445.88	2,211.95	5,493.41	27,503.15	109,715.41	1589.71	111,305.12
	% Education Paid by State	22.4	.7	5.1	1.2	15.7	.3	16.4	8.0	.4	7.9
	" " " " Govt.	77.6	99.3	94.9	98.8	84.3	99.7	83.6	92.0	99.6	92.1
	% Total State Expenditures Paid for Education	12.9	.3	5.2	1.1	11.9	.1	6.7	4.5	.2	4.4
Ribes Compens- ation	% Total Govt. Expenditures Paid for Education	66.1	88.2	82.2	91.9	66.8	79.8	91.5	84.9	44.9	83.8
	Amt. Paid by State	-	37.20	272.02	56.90	-	-	34.65	400.77	-	400.77
	" " " Govt.	-	-	-	-	-	-	-	-	-	-
	Total Amt. Paid	-	37.20	272.02	56.90	-	-	34.65	400.77	-	400.77
	% Comp. Paid by State	-	100.0	100.0	100.0	-	-	100.0	100.0	-	100.0
	" " " " Govt.	-	-	-	-	-	-	-	-	-	-
	% Total State Expenditures Paid for Ribes Compensation	-	.1	2.6	.2	-	-	.05	.2	-	.2
Field Data	% Total Govt. Expenditures Paid for Ribes Comp.	-	-	-	-	-	-	-	-	-	-
	Amt. Paid by State	8.54	1791.65	4.80	53.89	150.00	49.20	10,025.38	12,083.46	34.42	12,117.88
	" " " Govt.	-	-	-	-	-	-	-	-	-	-
	Total Amt. Paid	8.54	1791.65	4.80	53.89	150.00	49.20	10,025.38	12,083.46	34.42	12,117.88
	% Field Data Paid by State	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	" " " " Govt.	-	-	-	-	-	-	-	-	-	-
	% Total State Expenditures Paid for Field Data	.04	3.1	.04	.2	5.1	.4	14.9	6.2	1.0	6.1
Misc.	% Total Govt. Expenditures Paid for Field Data	-	-	-	-	-	-	-	-	-	-
	Amt. Paid by State	964.47	249.39	72.82	23.20	108.00	2781.59	4973.18	9,172.65	300.00	9,472.65
	" " " Govt.	-	-	-	-	-	-	-	-	-	-
	Total Amt. Paid	964.47	249.39	72.82	23.20	108.00	2781.59	4973.18	9,172.65	300.00	9,472.65
	% Misc. Paid by State	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	" " " " Govt.	-	-	-	-	-	-	-	-	-	-
	% Total State Expenditures Paid for Misc.	4.3	.4	.7	.1	3.7	25.8	7.3	4.6	9.1	4.7
Totals (All Projects	% Total Govt. Expenditures Paid for Misc.	-	-	-	-	-	-	-	-	-	-
	Amt. Paid by State	22,451.04	56,890.46	10,280.69	24,637.05	2,920.54	10,763.32	67,344.39	195,487.49	3280.85	198,768.34
	" " " Govt.	15,301.00	33,181.82	12,203.64	25,327.44	2,795.76	6,863.42	25,135.41	118,808.49	3525.84	122,334.33
	Total Amt. Paid	37,752.04	90,072.28	22,484.33	49,964.49	5,716.30	17,626.74	92,479.80	314,295.98	6806.69	321,102.67
	% Paid By State	59.5	63.2	45.7	51.6	51.1	61.1	72.8	62.2	48.2	61.9
	% Paid By Govt.	40.5	36.8	54.3	48.4	48.9	38.9	27.2	37.8	51.8	38.1

(NOTE: Expenditures of \$6177.74 in Minn. not included in this table.)

crease the amount of such funds in the future in order to complete its control project within the time limit. Vermont is also in need of more state funds to effectively carry on its supervisory work. The financial conditions in the Lake States is discussed in detail under the heading of each state. Additional federal money will be needed during the fiscal year 1925 in Maine, New York The amounts are shown in a detailed budget given at the end of this report.

Year	1950	1951	1952	1953	1954	1955
1950	1.0	1.0	1.0	1.0	1.0	1.0
1951	1.0	1.0	1.0	1.0	1.0	1.0
1952	1.0	1.0	1.0	1.0	1.0	1.0
1953	1.0	1.0	1.0	1.0	1.0	1.0
1954	1.0	1.0	1.0	1.0	1.0	1.0
1955	1.0	1.0	1.0	1.0	1.0	1.0

Table No. 74 is condensed into table no. 75 in order to show a better comparison of total state and federal expenditures by projects during 1923.

Comparison of State and Federal Cooperative Blister Rust Control Expenditures in New England and New York by Projects--1923.

Table # 75

Projects	Super- vision	Ribes Eradication	Education	Compen- sation	Field Data	Misc.
Total state funds used by projects	\$12,315.15	\$152,740.34	\$8,774.12.	\$400.77	\$12,083.46	\$9,172.65
Total federal funds used by projects	15,054.67	(Ribes scout ing in Me.) \$ 2,812.53	\$100,941.29	-	-	-
Total state and federal funds used by projects	\$27,370.82	\$155,552.87	\$109,715.41	\$400.77	\$12083.46	\$9,172.65
% of cost per pro- ject paid by states	45.0	98.2	8.0	100.0	100.0	100.0
% of cost per pro- ject paid by Govt.	55.0	1.8	92.0	-	-	-
Range of % of cost per project paid by state	Vt. -- N.Y. 29.2 62.7	(100.) Me.-- All 85.4 Others	Conn.-Me. .3 22.4	Me., R.I. Conn.-0 100.0	100.0	100.0
Range of % in cost per project paid by Govt.	N.Y.---Vt. 37.3 70.8	(0) All Me. Others 14.6	Me.-Conn. 77.6-99.7	No. Expend.	No. Expend.	No. Expend.
% of state funds used on projects	6.3	78.1	4.5	.2	6.2	4.6
% of federal funds used on projects	12.7	*2.4	84.9	-	-	-
Total state and federal funds used on projects--%	8.7	49.4	34.9	.1	3.8	2.9
Range of % of state funds used on projects.	New Hemp.- R.I. 5.2 14.4	Conn.-Mass. 63.7 92.9	Conn.-Me. .1 12.9	N.Y.--.05 Vt.--2.6	Me.--.04 N.Y.-14.9	Mass.--.1 Ct.--25.8
Range of % of federal funds used on projects	N.Y.---8.5 R.I.---33.2	Me.--18.4	Me.---66.1 N.Y.--91.5	-	-	-

*Ribes scouting in Maine.

Grand total expenditures all projects
New England and New York

State---\$195,487.49
Govt.---118,808.49
TOTAL---\$314,295.98

1. *Chlorophyll a* (Chl a) 1.000

2. *Chlorophyll b* (Chl b) 0.250

3. *Chlorophyll c* (Chl c) 0.100

4. *Chlorophyll d* (Chl d) 0.050

5. *Chlorophyll e* (Chl e) 0.020

6. *Chlorophyll f* (Chl f) 0.010

7. *Chlorophyll g* (Chl g) 0.005

8. *Chlorophyll h* (Chl h) 0.002

9. *Chlorophyll i* (Chl i) 0.001

10. *Chlorophyll j* (Chl j) 0.000

11. *Chlorophyll k* (Chl k) 0.000

12. *Chlorophyll l* (Chl l) 0.000

13. *Chlorophyll m* (Chl m) 0.000

14. *Chlorophyll n* (Chl n) 0.000

15. *Chlorophyll o* (Chl o) 0.000

16. *Chlorophyll p* (Chl p) 0.000

17. *Chlorophyll q* (Chl q) 0.000

18. *Chlorophyll r* (Chl r) 0.000

19. *Chlorophyll s* (Chl s) 0.000

20. *Chlorophyll t* (Chl t) 0.000

21. *Chlorophyll u* (Chl u) 0.000

22. *Chlorophyll v* (Chl v) 0.000

23. *Chlorophyll w* (Chl w) 0.000

24. *Chlorophyll x* (Chl x) 0.000

25. *Chlorophyll y* (Chl y) 0.000

26. *Chlorophyll z* (Chl z) 0.000

27. *Chlorophyll aa* (Chl aa) 0.000

28. *Chlorophyll ab* (Chl ab) 0.000

29. *Chlorophyll ac* (Chl ac) 0.000

30. *Chlorophyll ad* (Chl ad) 0.000

31. *Chlorophyll ae* (Chl ae) 0.000

32. *Chlorophyll af* (Chl af) 0.000

33. *Chlorophyll ag* (Chl ag) 0.000

34. *Chlorophyll ah* (Chl ah) 0.000

35. *Chlorophyll ai* (Chl ai) 0.000

36. *Chlorophyll aj* (Chl aj) 0.000

37. *Chlorophyll ak* (Chl ak) 0.000

38. *Chlorophyll al* (Chl al) 0.000

39. *Chlorophyll am* (Chl am) 0.000

40. *Chlorophyll an* (Chl an) 0.000

41. *Chlorophyll ao* (Chl ao) 0.000

42. *Chlorophyll ap* (Chl ap) 0.000

43. *Chlorophyll aq* (Chl aq) 0.000

44. *Chlorophyll ar* (Chl ar) 0.000

45. *Chlorophyll as* (Chl as) 0.000

46. *Chlorophyll at* (Chl at) 0.000

47. *Chlorophyll au* (Chl au) 0.000

48. *Chlorophyll av* (Chl av) 0.000

49. *Chlorophyll aw* (Chl aw) 0.000

50. *Chlorophyll ax* (Chl ax) 0.000

51. *Chlorophyll ay* (Chl ay) 0.000

52. *Chlorophyll az* (Chl az) 0.000

53. *Chlorophyll aza* (Chl aza) 0.000

54. *Chlorophyll abz* (Chl abz) 0.000

55. *Chlorophyll aca* (Chl aca) 0.000

56. *Chlorophyll acb* (Chl acb) 0.000

57. *Chlorophyll acc* (Chl acc) 0.000

58. *Chlorophyll acd* (Chl acd) 0.000

59. *Chlorophyll ace* (Chl ace) 0.000

60. *Chlorophyll acf* (Chl acf) 0.000

61. *Chlorophyll acg* (Chl acg) 0.000

62. *Chlorophyll ach* (Chl ach) 0.000

63. *Chlorophyll aci* (Chl aci) 0.000

64. *Chlorophyll acj* (Chl acj) 0.000

65. *Chlorophyll ack* (Chl ack) 0.000

66. *Chlorophyll acl* (Chl acl) 0.000

67. *Chlorophyll acm* (Chl acm) 0.000

68. *Chlorophyll acn* (Chl acn) 0.000

69. *Chlorophyll aco* (Chl aco) 0.000

70. *Chlorophyll acp* (Chl acp) 0.000

71. *Chlorophyll acq* (Chl acq) 0.000

72. *Chlorophyll acr* (Chl acr) 0.000

73. *Chlorophyll acs* (Chl acs) 0.000

74. *Chlorophyll act* (Chl act) 0.000

75. *Chlorophyll acu* (Chl acu) 0.000

76. *Chlorophyll acv* (Chl acv) 0.000

77. *Chlorophyll acw* (Chl acw) 0.000

78. *Chlorophyll acx* (Chl acx) 0.000

79. *Chlorophyll acy* (Chl acy) 0.000

80. *Chlorophyll acz* (Chl acz) 0.000

81. *Chlorophyll azaa* (Chl azaa) 0.000

82. *Chlorophyll abzab* (Chl abzab) 0.000

83. *Chlorophyll acaca* (Chl acaca) 0.000

84. *Chlorophyll acbac* (Chl acbac) 0.000

85. *Chlorophyll accca* (Chl accca) 0.000

86. *Chlorophyll accdb* (Chl accdb) 0.000

87. *Chlorophyll accda* (Chl accda) 0.000

88. *Chlorophyll accdb* (Chl accdb) 0.000

89. *Chlorophyll accda* (Chl accda) 0.000

90. *Chlorophyll accdb* (Chl accdb) 0.000

91. *Chlorophyll accda* (Chl accda) 0.000

92. *Chlorophyll accdb* (Chl accdb) 0.000

93. *Chlorophyll accda* (Chl accda) 0.000

94. *Chlorophyll accdb* (Chl accdb) 0.000

95. *Chlorophyll accda* (Chl accda) 0.000

96. *Chlorophyll accdb* (Chl accdb) 0.000

97. *Chlorophyll accda* (Chl accda) 0.000

98. *Chlorophyll accdb* (Chl accdb) 0.000

99. *Chlorophyll accda* (Chl accda) 0.000

100. *Chlorophyll accdb* (Chl accdb) 0.000

Analysis of Tables #75

(New England & New York Only)

In the states of New England and New York a total of \$314,295.98 was expended on the six blister rust control projects as follows: Ribes Eradication 49.4%, Education 34.9%, Supervision 8.7%, Field data 3.8%, Miscellaneous 2.9%, Compensation .1%. The state and its cooperators paid 62.2% of the entire costs while the Government expended 37.8%.

The federal expenditures of \$118,808.49 were confined to three projects: education 84.9%, supervision 12.7% and Ribes eradication 2.4%. This latter item being for Ribes scout work done by temporary blister rust control agents in Maine. The total state money \$195,487.49 was used on all six projects as follows: Ribes eradication 78.1%, supervision 6.3%, field data 6.2%, Miscellaneous 4.6%, ~~eradication~~ ^{education} 4.5%, and compensation .2%. The Government paid 92.0% of the total costs of the educational work, 55% of the supervision and 1.8% of the eradication costs, the states and their cooperators paid all the other expenses of the control work.

Project Supervision.

A total of \$27,370.82 was expended under the project supervision, the state paying 45% and the Government 55% of this total cost. The percent of such state expenditures ranged from 5.2% in New Hampshire to 14.4% in Rhode Island while the federal money used for this purpose varied from 8.5% in New York to 33.2% in Rhode Island. The percent of the total cost of supervision to the total expenditures for all projects in the state ranged from 6.1% in New York to 23.6% in Rhode Island. The highest expenditures for supervision were in New Hampshire (\$6870.60) and in New York (\$5713.66). The New York figures do not cover the cost of the camp supervisors as this is included under Ribes eradication. The high cost of supervision in these states is covered by having both a leader and an assistant leader, also York's salary is much larger than any of the other leaders. In Rhode Island one third of the agents' time is charged to supervision, therefore this produces a high supervisory cost. On the whole, the costs of supervision are just and a fair proportion of the total expenditures, except perhaps a little high in Maine, Vermont, Rhode Island and Connecticut where there are few agents. This cost in these states is offset by other factors which more than make up for the apparant higher percentage figures.

Ribes Eradication.

A total of \$155,552.87 was expended in Ribes eradication work in New England and New York, the states and their cooperators paying 98.2% of the costs and the Government 1.8%. The percent of state money (State appropriation, town funds, individual funds) used on eradication work to the total state expenditures for all projects ranged from 63.7% in Connecticut to 90.8% in Massachusetts. Four states, Connecticut, New York, Rhode Island and Maine should spend a larger proportion of their cooperative state funds on eradication work. A detailed analysis of this project is given in the next table.

Education.

Under the project education a total of \$109715.41 was expended, the Government paying 92.0 % of the costs and the states 8.0%. The state expenses on this project were largely in Maine and New York. In Maine temporary agents were employed on state funds, while in New York the expenses and salaries of some of the blister rust control agents have been paid from state money. The percent federal funds used on this project to that expended on all cooperative projects ranges in the various states from 66.1% in Maine to 91.5% in New York, or 84.9% for all states. Maine and New York should apparently spend less money on this project and more on eradication. Due to the fact that New York paid some of the expenses and salaries of the blister rust control agents, it did not use up the federal allotment by \$5000 during 1923. In the other states the money appears to be well proportioned on this project. Other summaries will bring out various additional points on the educational work.

Ribes Compensation.

Four states, New Hampshire, Vermont, Massachusetts, and New York expended a total of \$400.77 for Ribes compensation. Vermont alone paid over 67% of this total cost. No federal money was spent for compensation. A special table summarizes the Ribes compensation in detail.

Field Data.

The state departments expended a total of \$12083.46 on the project field data, the cost ranging from \$4.80 in Vermont to \$10,025.38 in New York. The cost under this heading appears to be reasonable except in New Hampshire and New York. The New Hampshire cost (\$1791.25) is due chief-

ly to the employment of state checkers on eradication work, which is a just charge. However the New York expenditures on this project is 17.3% of the entire state appropriation funds used during the year, and 14.9% of all state cooperative funds. Most of this money was used on pine survey, a few special field studies keeping more or less useless supervisors over winter doing very little real work, and a very little on Ribes checkers. The money spent on this project should be greatly decreased so as to be more representative of its weight to the whole control program. Also useless expenditures for keeping men over winter who are not fully qualified should be immediately discontinued.

Miscellaneous Project.

A total of \$9172.65 was expended by the state departments under the project Miscellaneous. The range of such expenditures varied from \$23.20 in Massachusetts to \$4973.18 in New York. The amounts spent on this project appear to be excessive in Maine (\$964.47), Connecticut \$2781.59 and New York \$4973.18. In Connecticut this expenditure represents 25.8% of all cooperative state funds used in the state and in New York and Maine, 7.3% and 4.3% respectively. The high cost in Connecticut was due to purchase of a truck and touring car, while the Miscellaneous project appears to have been a dumping ground for New York. Greater care should be used in New York to avoid expenditures which do not bear a more direct relation to the control work. In the future the New York expenditures will be more closely scrutinized and analysed.

Classification of Cooperative Blister Rust Control Funds Used on Project Ribes Eradication During 1923
in the North Eastern and Lake States.

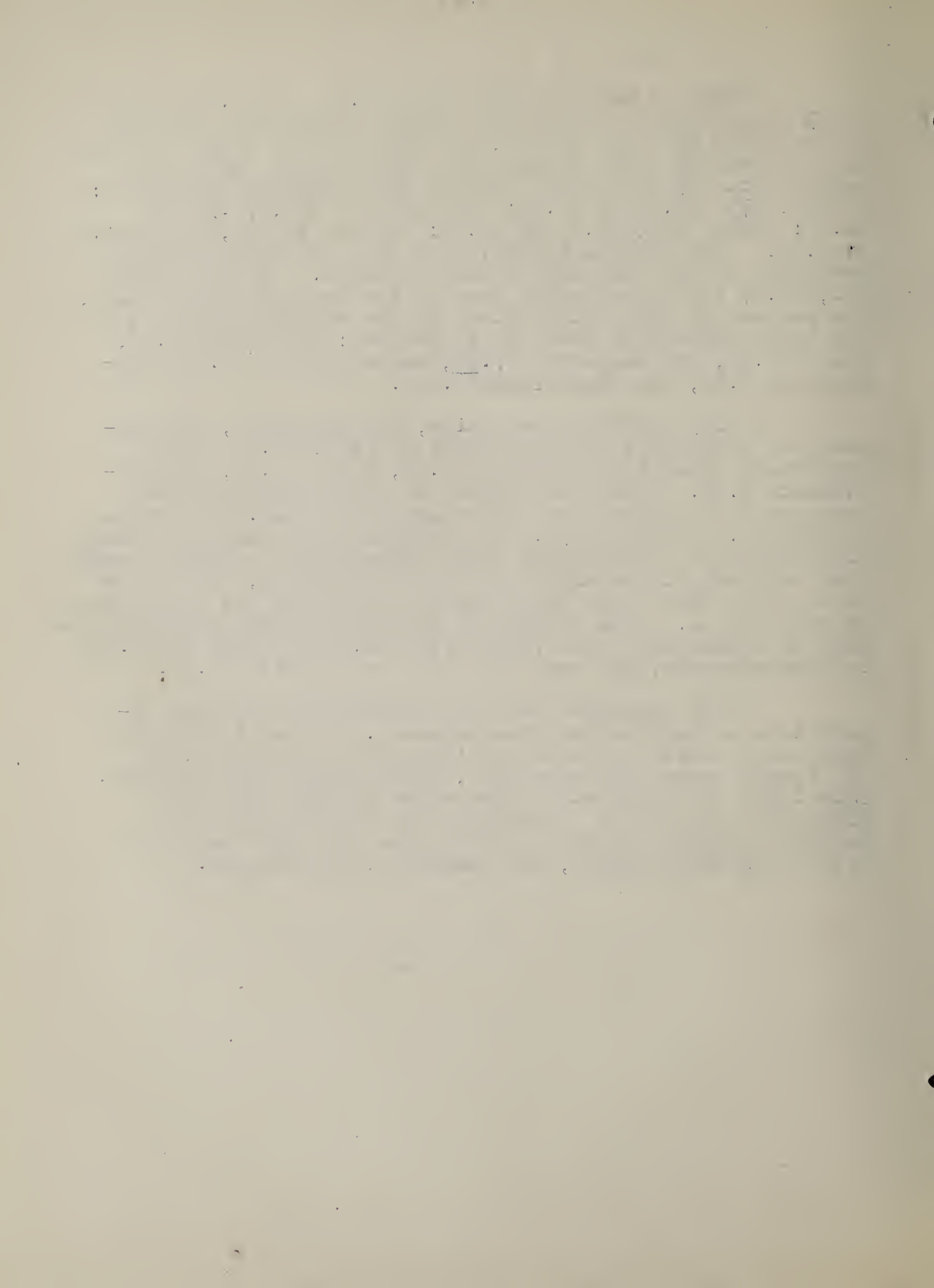
Table No. 76

Name of State	Amt. spent by Indiv.	% Indiv. funds to total used in each state on Ribes erad.	% Indiv. cost per state to total ind. cost New England & New York	Amt. spent by Towns	% Town funds to total used in each state on Ribes erad.	Amt. spent from State Appro.	% State Appro. used on erad. to total used in each state on this proj.	% Total State Approp. spent on proj. Ribes erad.	Amt. spent by Gov.	% Federal funds to total funds in each state used on Ribes erad.	Total funds spent by all coop.
Maine	8760.34	45.3	21.3	6899.99	35.6	860.30 (Ribes scout- ing)	4.4	12.6	2812.53 (Ribes scout- ing)	14.5	19333.16
N. H.	7635.45	14.8	18.6	32742.13	63.4	11273.90	21.8	68.2	-	-	51651.48
Vt.	7247.34	85.2	17.6	-	-	1251.09	14.8	41.2	-	-	8498.43
Mass.	6894.90	29.9	16.8	-	-	16186.02	70.1	90.6	-	-	23080.92
R. I.	15.36	.8	.03	-	-	1880.60	99.2	86.3	-	-	1895.96
Conn.	867.45	12.6	2.1	497.99	7.2	5497.70	80.1	58.4	-	-	6863.14
N. Y.	9548.63	21.6	23.3	-	-	34681.15	78.4	60.0	-	-	44229.78
Totals	40969.47	26.3	100.	40140.11	25.8	71630.76	46.1	63.0	2812.53 (Ribes scout- ing)	1.8	155552.87
Wisc.	603.75	22.6	-	-	-	2068.23	97.4	87.0	-	-	2671.99
Grand Totals	41573.22	26.3	-	40140.11	25.3	73698.99	46.6	63.5	2812.53	1.7	158224.85

Table #76 shows that \$158,224.85, or 48.3% of the total cooperative blister rust control expenditures in the Northeastern and Lake States, was spent on the project "Ribes Eradication" in eight cooperating states during 1923, the cooperators paying for the work in the following proportion: States, \$73,698.99 or 46.6%; Individuals, \$41,573.22 or 26.3%; Towns, \$40,140.11 or 25.3%; and the Government \$2812.53 or 1.7%. The federal expenditures were for Ribes scouting performed by the temporary agents in Maine. Of the total \$40,969.47 individual money used in New England and New York, the percent of such funds raised in the various states to the total individual money is as follows: New York 23.3%, Maine 21.3%, New Hampshire 17.6%, Massachusetts 16.8%, Connecticut 2.1%, and Rhode Island .03%.

Only three states, Maine, New Hampshire, and Connecticut received town appropriations (\$40,140.11), the proportion being New Hampshire 81.5%, Maine 17.2%, and Connecticut 1.2%. The total amount of state appropriation funds used on eradication work ranged from \$860.30 in Maine to \$34,681.15 in New York. Considering New Hampshire, Maine, and Vermont as a group, the state departments in these states paid only 16% of the entire cost of eradication, but in the other states the state departments paid 79% of the total costs of eradication. The percent of the total state appropriations used on eradication work varied from 12.6% in Maine to 90.6% in Massachusetts, the total for all states being 63.5%.

This analysis shows the expenditure of state appropriation funds is not well balanced. A large share of such money should be spent on Ribes eradication work, in all states except Massachusetts, Rhode Island and Wisconsin. This table also emphasizes the points brought out under discussion of Table # regarding the shifting of the burden of control work more onto towns and individuals in all states except Maine, New Hampshire, and Vermont.



Comparison of Cost Per Acre During 1923 Based on Cost for Project Eradication and
Total Costs for all Projects. (New England, New York, & Wisconsin.)

Table # 77

State	Total Acre- age Worked	Total Cost of Erad.	Total Cost all projects to Gov. State and its cooperators	Per Acre Costs	Difference in cost per acre between Erad. costs for all projects	% Increase over Erad. costs
				For all Projects		
Maine	336452	19333.16	37752.04	.057	.055	96.5
N. H.	268237	51651.48	90072.28	.192	.143	74.5
Vt.	25190	8498.43	22484.33	.337	.555	164.7
Mass.	201931	23080.92	48164.49	.114	.124	108.7
R. I.	31308	1895.96	5716.30	.061	.122	200.0
Conn.	14062	6863.14	17626.74	.488	.765	156.7
N. Y.	15459	44229.78	92479.78	2.861	3.121	109.1
Total	892639	155552.87	314295.98	.174	.178	102.3
Wis.	3347	2671.98	6806.69	.798	1.238	155.1
Grand Totals	895986	158224.85	321102.67	.176	.182	103.4

Table #77 shows that \$158,224.85 was expended in eradicating 895,986 acres of Ribes, and that a total of \$321,102.67 was expended for all control projects in New England, New York and Wisconsin. Based on eradication expenditures the per acre cost is 17.6 cents but when figured on total costs of all projects, it is increased to 35.8 cents or an increase of 103.4%. The range of increase in the states varies from 74.5% in New Hampshire to 200% in Rhode Island. The large increase in Rhode Island shows there is too big an overhead for the amount of eradication work carried on. In Connecticut the increase is due in part to a large proportion of the work consisting of scouting done by the agents. This scouting yields no cooperation, nor is the acreage covered by the agents added to the total area worked during the season. Outside of Litchfield County 98% of the pine is naturally protected due to scarcity of Ribes. In Vermont the eradication jobs are all small and scattered, consequently the overhead is high. Both in Connecticut and Vermont the amount paid for supervision is excessive in comparison with the number of agents supervised. As a whole the increase cost per acre when based on total expenditures is too high. Greater care should be used in allotting funds for all projects. Sufficient supervision and educational work are essential, and funds allotted under these headings should be held at fair and adequate figures. On the other hand, expenditures under Miscellaneous and Field data should be cut to a minimum consistent with good work.

Table #78 shows that every \$100 of federal \$ for \$ money used in New England \$135.46 of cooperative state funds was spent, while in New England and New York every \$100 federal expenditure was offset by an expenditure of \$163.45 cooperative state funds. This \$100 also produced results as listed under general and intensive educational work and in Ribes eradication. (In New England 936.4 acres cleared of 7540.4 wild Ribes and 584 cultivated bushes). As the Government expended, in New England, 79% more money than the amount used from state appropriations, it received correspondingly smaller returns from each \$100 than did the states. However with New York included, the state and federal expenditures are nearly equal, consequently the results obtained by the state and government are more nearly the same.

In New England every \$100 expenditure of state appropriation funds was offset by individuals, towns, and the Government expending \$298.93 on control work. In fact, the Government spent \$169.47 for every \$100 of state appropriation money used. In addition results as indicated in the table were obtained in the general and intensive educational work and in eradication. (1586.9 acres eradicated of 12,778 wild Ribes and 98.9 cultivated bushes.) Briefly, this table shows the Government is getting a good bargain for its expenditures, but the states are getting a better one, due to a smaller amount of state appropriation funds being used. The summary below shows the basis for the above table.

RESULTS ACCOMPLISHED IN BLISTER RUST CONTROL WORK DURING 1923 FOR EVERY \$100 EXPENDED OF

FOR FEDERAL MONEY

STATE APPROPRIATIONS

Table # 78

Results From Every \$100 of Fed. \$ for \$ Money Spent

Results From Every \$100 State Appropriation Spent

		In New England	In New Eng. & New York	In New Eng.	In New Eng. & New York
<div>Every Federal Expenditure Of \$100 in 1923 Pro- duced</div> <div>\$100 Federal Money</div> <div>Total Federal Expenditures:</div> <div>New Eng. \$93,673.08</div> <div>New York &</div> <div>New Eng. 118,808.49</div>	General Educational Work	Talks At Meetings-----	.60	.61	.63
		Exhibits Placed-----	.52	.49	.51
		Publications Distributed-----	42.3	43.2	45.3
		Items Published-----	.97	1.01	1.06
		Posters Placed-----	4.92	5.47	5.74
	Intensive Educational Work	Initial Interviews-----	14.4	12.39	13.02
		Follow-up Calls-----	5.22	4.68	4.91
		Disease Demonstrations-----	3.17	2.72	2.85
		Control Methods Demon.-----	1.84	1.58	1.66
	Cooperation	No. Individual Cooperators-----	2.4	1.7	1.7
		No. Cooperating Towns-----	.1	.1	.1
		No. Cooperating States-----	.006	.006	.1
		Amt. Expended by Individuals-----	\$32.54	\$34.49	\$36.23
		" " " Towns-----	42.85	33.79	35.50
		" " " States-----	59.07	95.17	105.07
	Eradication	Acreage Eradicated-----	936.4	751.3	789.4
		Wild Ribes Destroyed-----	7540.4	6708.2	7048.7
		Cult. " "-----	58.4	46.4	48.7

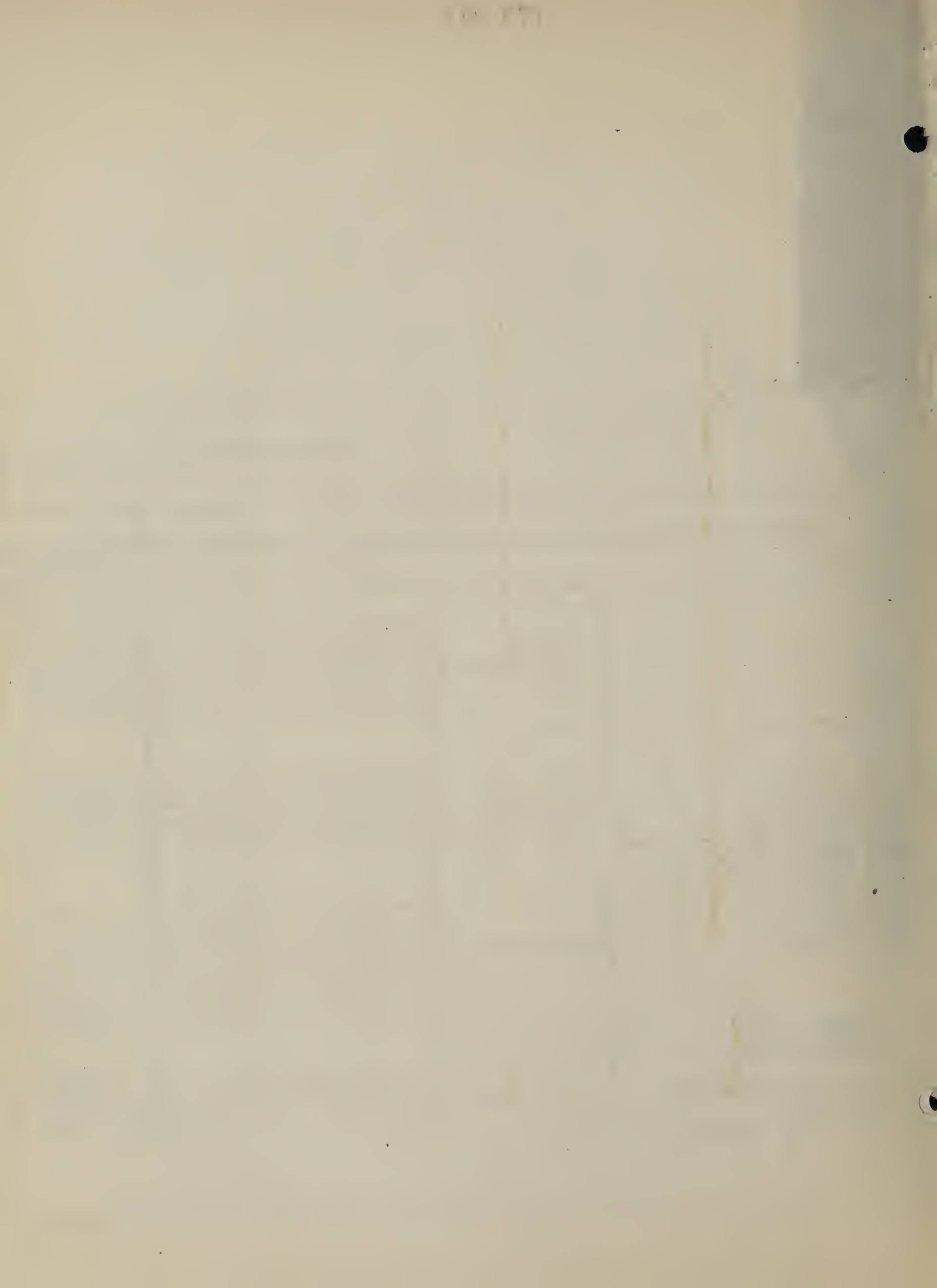
Every
State
Expenditure
of \$100 in
1923 Pro-
duced

\$100 State
Money

Total State
Expenditures:

New Eng. \$55,274.05
New York &
New Eng. 113,069.81

New York State		New York City		New York State	
Total State		Total City		Total State	
1933-34		1933-34		1933-34	
1934-35		1934-35		1934-35	
1935-36		1935-36		1935-36	
1936-37		1936-37		1936-37	
1937-38		1937-38		1937-38	
1938-39		1938-39		1938-39	
1939-40		1939-40		1939-40	
1940-41		1940-41		1940-41	
1941-42		1941-42		1941-42	
1942-43		1942-43		1942-43	
1943-44		1943-44		1943-44	
1944-45		1944-45		1944-45	
1945-46		1945-46		1945-46	
1946-47		1946-47		1946-47	
1947-48		1947-48		1947-48	
1948-49		1948-49		1948-49	
1949-50		1949-50		1949-50	
1950-51		1950-51		1950-51	
1951-52		1951-52		1951-52	
1952-53		1952-53		1952-53	
1953-54		1953-54		1953-54	
1954-55		1954-55		1954-55	
1955-56		1955-56		1955-56	
1956-57		1956-57		1956-57	
1957-58		1957-58		1957-58	
1958-59		1958-59		1958-59	
1959-60		1959-60		1959-60	
1960-61		1960-61		1960-61	
1961-62		1961-62		1961-62	
1962-63		1962-63		1962-63	
1963-64		1963-64		1963-64	
1964-65		1964-65		1964-65	
1965-66		1965-66		1965-66	
1966-67		1966-67		1966-67	
1967-68		1967-68		1967-68	
1968-69		1968-69		1968-69	
1969-70		1969-70		1969-70	
1970-71		1970-71		1970-71	
1971-72		1971-72		1971-72	
1972-73		1972-73		1972-73	
1973-74		1973-74		1973-74	
1974-75		1974-75		1974-75	
1975-76		1975-76		1975-76	
1976-77		1976-77		1976-77	
1977-78		1977-78		1977-78	
1978-79		1978-79		1978-79	
1979-80		1979-80		1979-80	
1980-81		1980-81		1980-81	
1981-82		1981-82		1981-82	
1982-83		1982-83		1982-83	
1983-84		1983-84		1983-84	
1984-85		1984-85		1984-85	
1985-86		1985-86		1985-86	
1986-87		1986-87		1986-87	
1987-88		1987-88		1987-88	
1988-89		1988-89		1988-89	
1989-90		1989-90		1989-90	
1990-91		1990-91		1990-91	
1991-92		1991-92		1991-92	
1992-93		1992-93		1992-93	
1993-94		1993-94		1993-94	
1994-95		1994-95		1994-95	
1995-96		1995-96		1995-96	
1996-97		1996-97		1996-97	
1997-98		1997-98		1997-98	
1998-99		1998-99		1998-99	
1999-00		1999-00		1999-00	
2000-01		2000-01		2000-01	
2001-02		2001-02		2001-02	
2002-03		2002-03		2002-03	
2003-04		2003-04		2003-04	
2004-05		2004-05		2004-05	
2005-06		2005-06		2005-06	
2006-07		2006-07		2006-07	
2007-08		2007-08		2007-08	
2008-09		2008-09		2008-09	
2009-10		2009-10		2009-10	
2010-11		2010-11		2010-11	
2011-12		2011-12		2011-12	
2012-13		2012-13		2012-13	
2013-14		2013-14		2013-14	
2014-15		2014-15		2014-15	
2015-16		2015-16		2015-16	
2016-17		2016-17		2016-17	
2017-18		2017-18		2017-18	
2018-19		2018-19		2018-19	
2019-20		2019-20		2019-20	
2020-21		2020-21		2020-21	
2021-22		2021-22		2021-22	
2022-23		2022-23		2022-23	
2023-24		2023-24		2023-24	
2024-25		2024-25		2024-25	
2025-26		2025-26		2025-26	
2026-27		2026-27		2026-27	
2027-28		2027-28		2027-28	
2028-29		2028-29		2028-29	
2029-30		2029-30		2029-30	
2030-31		2030-31		2030-31	
2031-32		2031-32		2031-32	
2032-33		2032-33		2032-33	
2033-34		2033-34		2033-34	
2034-35		2034-35		2034-35	
2035-36		2035-36		2035-36	
2036-37		2036-37		2036-37	
2037-38		2037-38		2037-38	
2038-39		2038-39		2038-39	
2039-40		2039-40		2039-40	
2040-41		2040-41		2040-41	
2041-42		2041-42		2041-42	
2042-43		2042-43		2042-43	
2043-44		2043-44		2043-44	
2044-45		2044-45		2044-45	
2045-46		2045-46		2045-46	
2046-47		2046-47		2046-47	
2047-48		2047-48		2047-48	
2048-49		2048-49		2048-49	
2049-50		2049-50		2049-50	
2050-51		2050-51		2050-51	
2051-52		2051-52		2051-52	
2052-53		2052-53		2052-53	
2053-54		2053-54		2053-54	
2054-55		2054-55		2054-55	
2055-56		2055-56		2055-56	
2056-57		2056-57		2056-57	
2057-58		2057-58		2057-58	
2058-59		2058-59		2058-59	
2059-60		2059-60		2059-60	



Basis for Table on Results Accomplished in Blister Rust Control Work During 1923 for Every \$100 Expenditure of \$ for \$ Federal Money and State Appropriations.

Table 79

	Items	Total Amount in New England	Total Amount in New England & New York
General	Meetings	565	722
Educational	Exhibits	489	582
Work	Publications	39648	51308
	Items pub.	908	1203
	Posters	4604	6499
	Initial in- terviews	13574	14724
Intensive	Follow up calls	4889	5555
Educational	Disease and damage demon- strations	2971	3227
Work	Control methods demonstrations	1723	1881
	Individuals	\$ 31420.84	\$ 40969.47
Cooperation	Towns	\$ 40140.11	\$ 40140.11
	States	\$ 55274.05	\$ 113069.81
	Federal \$ for \$ money	\$ 93673.08	\$ 118808.49
	Acreage erad.	877180.00	892639.
Eradication	Wild Ribes pulled	7063300	7969917
	Cult. " "	54707	55074

BALANCE OF STATE AND FEDERAL BLISTER RUST CONTROL FUNDS
Available for Period January 1, 1924--June 30, 1924.

Table # 80

Source of Funds	State Appropriations	Nursery Funds	Town Appropriations	Indiv. Funds or Labor	All Others	Total State Funds	Balance Jan. 1- Fed. \$ for \$ Allotted	Total Federal Money Needed	Total State & Federal Funds Avail.
Maine	\$1,456.79	-	-	-	-	\$1,456.79	\$7,781.80	\$8,936.08	\$9,238.59
N. H.	1,350.37	-	\$772.68	-	-	2,123.05	15,040.88	16,510.00	17,163.93
Vt.	266.18	-	-	\$2,514.76	-	2,780.94	3,711.13	5,550.00	6,492.07
Mass.	-	-	-	-	-	-	11,201.87	11,201.87	11,201.87
R. I.	322.82	-	-	-	-	322.82	1,333.21	1,583.21	1,656.03
Conn.	942.50	-	775.00	-	-	1,717.50	5,979.70	3,735.00	7,697.20
N. Y.	16,693.97	-	-	-	-	16,693.97	19,401.64	13,447.31	36,095.61
Totals	21,032.63	-	1,547.68	\$2,514.76	-	\$25,095.07	\$64,450.23	\$60,963.47	\$89,545.30
Wisc.	-	-	-	-	-	-	932.11	932.11	932.11
Grand Totals	21,032.63	-	\$1,547.68	\$2,514.76	-	\$25,095.07	\$65,382.34	\$61,895.58	\$90,477.41

During April 1924--additional federal allotments were made as follows: Maine \$2000.
N.H. 1000.
R. I. 250.

Table # 80 shows that the total amount of federal \$ for \$ cooperative funds as originally allotted to the states for the fiscal year 1924 is sufficient to cover all needs. However, certain re-allotments will be necessary in the various states. New York and Connecticut will have unused balances of \$5954.33 and \$2244.70 respectively, which can be released for use in other states. Increased allotments are needed as follows: Maine \$1154.28, New Hampshire \$1470, Vermont \$1838.27 and Rhode Island \$250. During April increased allotments were made to Maine \$2000, New Hampshire \$1000 and Rhode Island \$250. Thus Maine has more than enough money to cover its needs, but New Hampshire still needs \$470 additional federal money and as yet the Vermont allotment has not been increased. Thus after reallotting funds and giving each state the amount of federal funds needed or as indicated, there will be a federal balance of \$3866.83 which can be allotted for additional work in the cooperating states. No increase is needed in Wisconsin if Ninman's salary and expenses from February 16 - May 1 while on Washington trip and on quarantine inspection work are not charged against \$ for \$ funds. In all cases the federal expenditures during the fiscal year 1924 will be offset by at least an equal amount of state money.

The \$18,000 Massachusetts state appropriation becomes available April 1, 1924, also \$10,000 additional state money in New York on May 1st. Additional town funds will become available before May 1st in Maine, New Hampshire, and Connecticut, and in all states except Rhode Island individual cooperation will be obtained during May and June.

ESTIMATED STATE AND FEDERAL BLISTER RUST CONTROL FUNDS
Available for Fiscal Year--July 1, 1924-June 30, 1925.

Table #81

Source of Funds	State Appropriations	Nursery Funds	Town Appropriations	Indiv. Funds or Labor	All Others	Total State Funds	Federal \$ For \$	Total State and Federal Funds
Maine	\$5,000.	\$500.	\$8,000.	\$10,000.	-	\$23,500.	\$18,000.	\$41,500.
N. H.	17,000.	-	35,000.	8,000.	-	60,000.	33,000.	93,000.
Vt.	3,000.	-	100.	9,200.	-	12,300.	12,680.	24,980.
Mass.	18,000.	-	-	5,000.	-	23,000.	22,975.	45,975.
R. I.	3,000.	-	-	-	\$500.	3,500.	3,180.	6,680.
Conn.	7,500.	-	2,000.	500.	-	10,000.	9,590.	19,590.
N. Y.	60,000	-	-	15,000.	-	75,000	34,200.	109,200.
TOTALS	\$113,500.	\$500.	\$45,100.	\$47,700.	\$500.	\$207,300.	\$133,625.	\$340,925.
Wisc.	-	1,500.	-	-	500.	2,000.	2,400.	4,400.
Minn.	*1,500. y	1,500.	-	-	-	3,000.	2,000.	5,000.
GRAND TOTALS	\$115,000	\$3,500.	\$45,100.	\$47,700.	\$1,000.	\$212,300.	\$138,025	\$350,325.

* Forestry Dept.

The \$10,000 fund for the purpose of the
above article April 1, 1947, was \$10,000.00
money in New York on May 1st. The balance of the fund will
be available before May 1st in New York, New Jersey, and
Connecticut, and in all other states where the fund is available
operation will be obtained before May 1st.

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Comparison of Cooperative Blister Rust Control Work in
Northeastern States Between Years - 1922 and 1923 -

Table # 82

(New England & New York)										
Year	Total Acreage	Total Ribes		Total Cost	Cost per acre	No. Coop Towns	Amt. Town Money Approp.	Amt. Town Money Used	No. Indiv. Coop. (Wild Ribes)	Amt. paid by Indiv Coop
		Wild	Cult.							
1922	476621	4849812	16061	96818.37	.203	59	20500.	18273.12	971	24546.43
1923	892639	7969917	55074	160883.87	.180	121	39530.	40140.11	1968	40969.47
Total	1369260	12819729	71135	257702.24	.188	180	60030.	58413.23	2939	65515.90
%1923										
Increase	87.3%	64.3%	242.9%	66.1%		105.1	92.8%	119.6	102.7%	66.9%

New England - New York - and Wisconsin

1922	481,466	5381674	16061	99852.01	.20	59	20500.	18273.12	993	24904.65
1923	895,986	8173960	55074	163555.85	.182	121	39530.	40140.11	1998	41573.22
Total	1377,452	13555634	71135	263407.86	.191	180	60030.	58413.23	2991	66477.85
%1923										
Increase	86.1%	51.9%	242.9%	63.8%	105.1%	92.8%	119.6%	101.2%	67.1%	

Table # 82 shows the great increase in volume of work performed in 1923 over 1922. Increases over 1922 in New England and New York are as follows: - acreage eradicated 87.3%; wild Ribes eradicated 64.3%; cultivated bushes destroyed 242.9%; number of cooperators 105.1%; amount of town money appropriated 92.8%; amount of town funds spent 119.6%; number of individuals cooperating in wild Ribes eradication 102.7%; and amount of individual money used 66.9%. Although the total cost of eradication work was increased 66.1%, yet the per acre cost in 1923 was decreased 2.1 cents over the 1922 figure. In addition to the number of individual cooperators given in the table 698 persons destroyed their cultivated Ribes during 1923.

In order to show in more detail the increase in amount of town and individual cooperation in 1923 over 1922 in the various states, the data has been summarized below in table # 83.

Percent Increase in Blister Rust Control Results by States
During 1923 over 1922.

Table # 83

State	Percent Increase in 1923 over 1922				
	No. of Town Approp.	Amt. of Town funds Approp.	Amt. of Town funds Expended	No. of Individ. Coop.	Amt. expended by Individ. Coop.
Maine	387.5 %	447.3	525.0	134.9	98.7
N.H.	65.3	88.8	120.3	**	*
Vt.	-	-	-	76.0	31.7
Mass.	-	-	-	142.2	114.0
R.I.	-	-	-	-	-
Conn.	*	*	*	350.	363.6
N.Y.	-	-	-	50.	196.6
New Eng. New York	105.1	92.8	119.6	102.6	66.9
Wis.	-	-	-	50	84.6

*In Connecticut the amount of town money appropriated and expended in three cooperating towns decreased 78% in 1923 over 1922. However this is offset by the towns in Connecticut expending a larger proportion on land projects in 1922 than did

Table 4 shows the trend in volume of work performed in 1957 over 1955. Increases over 1955 in New England and New York are as follows: - average total cost \$7.50; with 1955 estimated at \$6.75; cultivated number destroyed 24.2%; number of cooperators 102.1%; amount of town money appropriated 90.3%; amount of town funds spent 115.0%; number of individuals cooperating in wild rice cultivation 102.7%; and amount of individual money paid 90.3%. Although the total cost of eradication work was increased 60.1%, yet the per acre cost in 1957 was decreased 5.1 cents over the 1955 figure. In addition to the number of individual cooperators given in the table 628 persons destroyed their cultivated rice during 1957.

In order to show in more detail the increase in amount of town and individual cooperation in 1957 over 1955 in the various states, the data has been summarized below in Table 5.

Percent Increase in Wild Rice Control Results by States During 1957 over 1955

Percent Increase in 1957 over 1955				
State	No. of Towns Approp. Funds	Per. of Indiv. Towns	Per. of Indiv. by Indiv. Co.	Per. of Indiv. by Indiv. Co.
Ala.	102.5	101.3	102.0	114.0
Ark.	102.3	101.8	100.3	110.0
Cal.	-	-	-	102.0
Del.	-	-	-	100.0
Ill.	-	-	-	-
Ind.	-	-	-	102.0
Iowa	-	-	-	102.0
Mich.	-	-	-	102.0
N.Y.	-	-	-	102.0
Pa.	102.1	101.8	101.0	101.0
W.V.	-	-	-	102.0

* In Connecticut the amount of town money appropriated and expended in 1957 over 1955 was \$100,000 and \$100,000 respectively. However, this is offset by the town of Connecticut which expended a larger proportion of 1957 money in 1955 than in 1957.

COMPARISON OF TOWN AND INDIVIDUAL COOPERATION IN BLISTER RUST CONTROL WORK By States
IN NORTHEASTERN STATES BETWEEN 1922 and 1923.

Table # 84.

STATE	TOWN COOPERATION										INDIVIDUAL COOPERATION									
	1922				1923				Increase or De- crease in Amt. of Town Approp. in 1923 over 1922	Increase or Decrease in Amt. of Town Funds Used in 1923 over 1922	1922				1923				Increase or Decrease in No. of Coop. in 1923 over 1922	Increase or Decrease in Amt. of Expendi- tures by Ind. in 1923 over 1922
	No. Towns Approp.	No Towns Worked	Amount Approp.	Amount Used	No. Towns Approp.	No. Towns Worked	Amount Approp.	Amount Used			No. Coop- erators	% of Total Coop. in New Eng. & N.Y. Obtain- ed in each state	Cost to Indiv- iduals	% of Total Cost to Indiv. in N.Y. and New Eng. shared by Own- ers in each St.	No. Coop.	% of Total Coop. in New Eng. Obtained in each State	Cost To Indiv- uals	% of Total Cost to Ind. in N.Y. & New Eng. shared by owners in each State		
Maine	8	8	\$1,300.00	\$1,104.26	39	39	\$7,115.00	\$6,899.99	+447.3	+525.0	464	47.7	\$4,409.32	17.9	1090	55.4	\$8,760.34	21.3	+134.9	+98.7
N. H.	49	49	16,900.00	14,868.21	81	81	31,915.00	32,742.13	+ 88.8	+ 120.3	148	15.2	8,004.82	32.6	121	6.1	7,635.45	18.6	- 19.3	- 4.6
Vt.	-	-	-	-	-	-	-	-	-	-	125	12.8	5,502.22	22.4	220	11.2	7,247.34	17.6	+ 76.0	+31.7
Mass.	-	-	-	-	-	-	-	-	-	-	194	19.9	3,222.67	13.1	470	23.8	6,894.90	16.8	+ 142.2	+114.0
R. I.	-	-	-	-	-	-	-	-	-	-	0	-	-	-	1	.05	15.36	.03	-	-
Conn.	2	3	2,300.00	2,300.65	1	3	500.00	497.99	- 78.3	- 78.8	2	.2	187.50	.7	9	.4	867.45	2.1	+ 350.0	+ 363.6
TOTALS NEW ENG.	59	60	20,500.00	18,273.12	121	123	39,530.00	40,140.00	+ 92.8	+119.6	933	96.0	21,326.53	86.8	1911	97.1	31,420.84	76.6	+ 104.8	+ 47.3
New York	-	-	-	-	-	-	-	-	-	-	38	3.9	3,219.90	13.1	57	2.9	9,548.63	23.3	+ 50.0	+3196.6
TOTALS N.Y. & NEW ENG.	59	60	20,500.00	18,273.12	121	123	39,530.00	40,140.11	+ 92.8	+119.6	971	100.0	24,546.43	100.0	1968	100.0	40,969.47	100.0	+ 102.6	+ 66.9
Wisc.	-	-	-	-	-	-	-	-	-	-	20	-	322.50	-	30	-	603.75	-	+ 50.0	+ 84.6

Note: Number of cooperators includes only those eradicating wild Ribes. A total of 698 individuals also cooperated in eradicating cultivated bushes in New England.
Maine 58, Vt. 3, Mass. 586, R. I. 34, Conn. 17.---Total 698.

Table 4-1 shows the present increase in volume of work performed in 1957 over 1952. Increases over 1952 in New England and New York are as follows: - average estate 87.3%; with higher estate 64.3%; cultivated pasture destroyed 24.7%; number of cooperatives 105.1%; amount of town money appropriated 97.8%; amount of town land grant 112.0%; number of individuals cooperating in wild life 112.0%; and amount of individual money used 60.3%. Although the total cost of eradication was not increased 60.3%, yet the per acre cost in 1957 was decreased 2.1 cent over the 1952 figure. In addition to the number of individual cooperators given in the table 68 persons destroyed their cultivated fields during 1957.

In order to show in more detail the increase in amount of town and individual cooperation in 1957 over 1952 in the various states, the data has been summarized below in Table 4-2.

Present increase in blight and control results by states during 1957 over 1952

State	No. of Towns	Per cent of Towns	No. of Individuals	Per cent of Individuals
Alabama	35.5	64.3	22.0	174.0
Arkansas	62.3	31.3	120.7	*
California	-	-	-	10.0
Colorado	-	-	-	145.5
Connecticut	-	-	-	-
Delaware	*	*	*	75.0
District of Columbia	-	-	-	70.0
Florida	105.1	92.8	110.3	101.4
Georgia	-	-	-	24.0

* In Connecticut the amount of town money appropriated and expended in three cooperative towns reported 70% in 1957 over 1952. However data is given by the town in Connecticut regarding a larger proportion on 100% increase in 1952 than the

the state. Also in 1924 the towns will expend more than the state on local areas. In New Hampshire the number of individual cooperators decreased 19.3% and the amount of individual funds spent decreased 4.6%. This decrease in individual money was greatly offset by an increased amount of town funds. The following table #84 is given to show the basis of the percent figures given above.

STATE	INDIVIDUAL COOPERATORS						Increase or decrease in amount of town funds used in 1923 over 1922
	No. of individuals	Cost to individuals	Cost to towns	No. of individuals	Cost to individuals	Cost to towns	
Maine	1021	2.71	37.004.12	47.74	444	4.33	-
N. H.	131	2.35	38.400.82	12.81	128	12.81	-
Vt.	322	2.32	32.803.12	8.21	321	321	-
Mass.	074	1.51	73.333.12	9.21	101	101	-
R. I.	1	-	-	-	0	0	-
Conn.	9	7.	08.731	2.	2	2	-
TOTALS NEW ENG.	1121	2.32	31.335.12	0.32	322	322	-
New York	73	1.11	02.212.20	2.4	31	31	-
TOTALS N.Y. & NEW ENG.	832	1.001	34.547.32	0.001	353	353	-
Wisc.	35	-	03.337	-	30	30	-

1 of 500 individuals also cooperated in erecting buildings in

the state. Also in 1907 the state will report the number of
the state on local roads. It has been estimated the number of
individual cooperators between 1907 and the amount of
individual funds went toward 1907. This increase in
individual money was greatly offset by an increase in amount
of town funds. The following table is given to show
the basis of the present figures given above.

Comparison of Results in Cooperative Blister Rust Control Work
in Northeastern States Between Periods 1918-21 and
1922-1923.

Table # 85

States	Period	Total Acreage Worked	Total Ribes Pulled		Total Cost of Eradication	Cost Per Acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. Paid by Indiv. Cooperators
			Wild	Cult.						
New Eng. & N.Y.	1918-1921	1,036,903	14,399,785	91,718	\$389,442.75	\$.376	166	\$27,560.00	381	\$40,596.22
	1922-1923	1,369,260	12,819,729	71,135	257,702.24	.188	180	60,030.00	2939	65,515.90
	TOTALS	2,406,163	27,219,514	162,853	647,144.99	.269	346	87,590.00	3320	106,112.12
1922-23 to total		56.9	47.1	43.7	39.8		52.0	68.8	88.5	61.7
New Eng., N. Y. Minn. & Wisc.	1918-1921	1,061,991	16,068,996	91,855	\$415,057.28	\$.391	166	\$27,560.00	452	\$42,643.81
	1922-1923	1,377,452	13,555,634	71,135	263,407.86	.191	180	60,030.00	2991	66,477.85
	TOTALS	2,439,443	29,624,630	162,990	678,465.14	.278	346	87,590.00	3443	109,121.66
1922-23 to Total		56.4	45.7	43.6	38.8		52.0	68.8	86.8	60.9

Note: No cost figure available in Conn. for 1918--Conn. acreage for 1918 (800 acres) omitted in obtaining per acre cost figures in sub-totals and grand totals.

The proportion of the total blister rust control results for all years accomplished in New England and New York since the adoption of the eight year control program in 1922 is as follows: acreage eradicated 56.9%, wild Ribes pulled 47.1%, cultivated bushes destroyed 43.7%, number of cooperating towns 52%, amount of town money appropriated 68.8%, number of individual cooperators 88.5%, and amount of money expended by individuals 61.7%. In other words a larger acreage was eradicated and considerably more cooperation obtained in the two years (1922 and 1923) than in the four years (1918-1921). In addition the average cost per acre was reduced from 37.6¢ to 18.8¢ or a reduction of 100%.

As a matter of record, the following summary will be given, showing the same kind of a table but including the 1917 eradication figures. As some 1917 data is lacking for Conn., Mass., and Minn., this summary will be of value chiefly as a

Comparison of Results in Cooperative Control Pests Program
in Northeastern States Between Periods 1915-21 and 1922-27.

(Period before and after the adoption of the eight
year control program--June 1, 1922.)

The proportion of the total alfalfa that control resulted
for all years accomplished in New England and New York since
the adoption of the eight year control program in 1922 is as
follows: average eradicated 50.9%, with Rhode Island 47.1%,
cultivated houses destroyed 5.7%, number of cooperatives lower
52%, amount of farm money represented 58.3%, number of
individual cooperators 55.3%, and amount of money expended by
individuals 51.7%. In other words a larger average was erad-
icated and cooperatively more cooperation obtained in the two
years (1922 and 1923) than in the four years (1915-1921). In
addition the average cost per acre was reduced from 17.04 to
12.34 or a reduction of 10%.

As a matter of record, the following summary will be
given, showing the same kind of a table but including the 1917
eradication figures. As soon as 1917 data is known for Oregon,
Washington, and Utah, this summary will be of value chiefly as a

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comparison of the acreage figures.

Comparison of Results in Cooperative Blister Rust Control Work in
Northeastern States Between Periods 1917-21 and 1922 and 1923.

Table # 86

States	Period	Total Acreage Worked	Total Ribes Pulled		Total Cost of Eradication	Cost per Acre	No. Coop. Towns	Amt. Town Money Approp.	No. Indiv. Coop.	Amt. Paid by Indiv. Cooperators
			Wild	Cult.						
New Eng. & N. Y.	1917-1921	1,299,465	15,261,138	161,232	\$454,923.99	\$.375	166	\$27,560.	386	\$40,639.08
	1922-1923	1,369,260	12,819,729	71,135	257,702.24	.188	180	60,030.	2939	65,515.90
	TOTALS	2,668,725	28,080,867	232,367	\$712,626.23	.276	346	\$87,590.	3325	\$106,154.98
	% 1922-23 to total	51.3	45.6	30.6	?		52.0	68.8	88.4	61.7
All States	1917-1921	1,525,767	16,968,349	161,369	\$482,314.51	.389	166	\$27,560.	457	\$42,686.67
	1922-1923	1,377,452	13,555,634	71,135	263,407.86	.191	180	60,030.	2991	66,477.85
	TOTALS	2,703,219	30,523,983	232,504	\$745,722.37	.276	346	\$87,590.	3448	\$109,164.52
	% 1922-23 to Total	47.4	44.4	31.8	?		52.0	68.8	86.7	60.9

No cost figures are available for the Mass. work in 1917 or for the Conn. work in 1918; Ribes data is also lacking in Minn. and Conn. for 1917. In obtaining per acre cost figures, subtotals, and grand totals, the Conn. acreage for 1918 and the Mass. acreage for 1917 were omitted.

The figures listed under the headings town and individual cooperation are the same in both tables, but in table # the percent figures are lower for the proportional part of the total acreage worked and Ribes eradicated during 1922 and 1923. However, the acreage eradicated of Ribes during the period is still 51% of the total area covered since 1917. Expressed in another way, more area was protected in the last two years than during the five year period 1917-1921. These figures show in cold facts the effectiveness of the new eight year control program.

COMPARISON OF ALL COSTS OF BLISTER RUST CONTROL WORK IN 1920 and 1923.
(All state, town, individual and federal \$ for \$ moneys included.)

Table 87

Year	District	Acreage	No. Wild Ribes	No. Cult. Ribes	Total State Expend.	Total Govt. Expend.	Total Indiv. Expend.	Total Town Expend.	Total Expend.	Amount Funds Spent By Cooperators For Each Acre Eradicated										Eradica- tion Cost per Acre		
										State		Govt.		Indiv.		Town		Indiv. & Town			Total For All	
										Amt.	%	Amt.	%	Amt.	%	Amt.	%	Amt.	%		Amt.	%
1920	New Eng.	263,600	3,548,150	25,889	\$26,578.83	\$54,253.93	\$6,759.49	\$8,775.00	\$96,358.25	\$.10	27.9	\$.205	57.2	\$.02	5.7	\$.033	9.2	\$.053	14.9	\$.358	100.0	\$.229
1923	"	877,180	7,063,300	54,707	56,502.05	92,647.62	31,444.04	40,140.11	220,733.82	.064	25.6	.105	41.8	.036	14.3	.046	18.3	.082	32.6	.251	100.0	.132
% Increase or Decrease		+232%	+99%	+111%	+112%	+71%	+365%	+357%	+129%	-36%		-49%		+75%		+39%		+55%		-30%		-42%
1920	New Eng. & New York	270,657	4,243,983	25,936	49,902.21	85,491.48	9,243.43	8,775.00	153,412.12	.184	32.6	.315	55.8	.033	5.9	.032	5.7	.065	11.6	.564	100.0	.313
1923	"	892,639	7,969,917	55,074	114,297.81	117,787.06	40,992.67	40,140.11	313,217.65	.128	36.5	.132	37.7	.045	12.9	.045	12.9	.090	25.8	.350	100.0	.179
% Increase or Decrease		+229%	+87%	+108%	+129%	+37%	+343%	+357%	+104%	-30%		-58%		+36%		+41%		+38%		-37%		-43%

The above information was obtained from the files of the FBI, New York, and is being furnished to you for your information.

Comparison of Total Costs of Blister Rust Control Work
during 1920 and 1923.

Based on total expenditures is the control work as efficient under the new plan as under the old system? 1920 was the last full year control work was carried on under the old plan, and 1923 was the first full year under the new policy. A comparison of the total expenditures for all projects in blister rust control during these two years is shown in the following table:

[illegible]

In analyzing this summary one should consider the following points:

1. The number of Ribes is merely based on crew estimates, however all other figures are accurate.
2. The total state expenditures includes all state money (state appropriation, nursery inspection funds or miscellaneous monies) used on all projects of control work, including all overhead charges.
3. The individual expenditures are confined to funds spent by individuals, associations or firms on control work.

4. The town expenditures include all money expended by towns on control work.

5. The federal expenditures cover all \$ for \$ federal money expended, in the listed states, for all projects on blister rust control work.

Comparing the work done during the two years one will note much greater results were obtained in all the various items during 1923. The increase in efficiency of the new method over the old system is shown by a direct comparison of the per acre values during the two years. In New England there was a reduction of 42% in the per acre cost of eradication, while the total cost of all projects per acre was reduced from 35.8 cents to 25.1 cents or a reduction of 30%. The figures also show the states and Government paid respectively 36% and 49% less money per acre in 1923 than in 1920. However, the individuals in 1923 expended 75% more per acre than in 1920, and the towns paid an increase of 39%. Comparing the proportionate part paid each year by the various cooperators shows the states expended practically the same proportion of the total costs each year. However, the Government paid a less proportionate cost in 1923, but still expended 63% more than the states. The town and individuals, on the other hand, paid over twice as high a proportionate part of the total costs in 1923 as in 1920. Combining New York with New England cuts down the proportionate part paid by amount expended by the state. The total cost for all cooperators is reduced from 56.4 cents to 35 cents per acre or a decrease of 37%, which shows the practicability of the of the present policy. In addition the public is being educated to recognize the disease, to apply control measures, and to carry on the bulk of the re-eradication work. Indirectly the agents are stimulating an interest in forestry, especially reforestation and protection. All this is being accomplished at a considerably less proportionate cost than under the old system.

towns + individuals and increases the

Summary and Analysis of Federal Blister Rust Control Work
Supervised by Boston Office During 1923.

The federal blister rust control work supervised by the Boston Office during 1923 will be discussed under the following headings: - (1) General, (work of Boston Office and E. C. Filler); (2) Specialists, (Fivaz and Endersbee); (3) Special, (Hodgkins); (4) Experiments, (North Hudson, Eau Galle, and Richard's work); (5) Federal Expenditures for Federal men in Northeastern and Lake States during 1923. (6) Plan of work for federal men during 1924. (7) Estimated expenditures for Federal men in Northeastern & Lake States for balance of fiscal year 1924 and fiscal year 1925.

General

The summary given below of "Results obtained at the Boston Office during 1923" shows in a general way the large volume of special work performed in addition to the general office routine of correspondence, records, reports, etc. An adequate record system was developed during the early part of 1923, but did not function properly until November. This was due to the following reasons:

1. The revised field records and office forms were not obtained until about May 15th, and the monthly summary forms B.R.E. 2a and b were not procured until the latter part of August.

2. Many of the agents were careless in submitting records promptly and accurately, and the state and federal leaders were lax in **not** insisting more firmly on proper reports from the field men.

3. During April to September, inclusive, the field supervisor was in the field 50% of the time, this left only a stenographer at the office, who had no ability or interest for record work, but was a capable stenographer.

4. The uncertainty in regards to retaining a field office at Boston also had an upsetting effect on the work, and finally resulted in the stenographer during September seeking employment elsewhere. This left the office for a few weeks without any clerical assistance as the federal supervisor was in the field at the time. About November 1st a capable field assistant was employed on a W.A.E. basis to act as clerk. As a result of strenuous efforts during November and December, the records of the blister rust control agents were completely summarized

and brought up to date. The success of the record system as a whole can be judged from the material in this report which is taken from the records of the Boston Office and the federal annual report forms (B.R.E.3a and B.R.E.4F.) submitted by the state leaders.

Fivaz, Endersbee, Ludgate and Stimson rendered valuable assistance from January to March in the preparation of many of the record forms, charts, reports, graphs, etc., listed below. Fivaz's work in helping revise the record system deserves special commendation. Ludgate spent most of his time helping Streater summarize the Eau Galle experiment data, but also assisted in drawing some of the charts. Since January 1924, the field men have been submitting their reports promptly and accurately made out, and the states have regularly been sent the monthly B.R.E.2a reports. Due to pressure of other work since January 1924, the B.R.E.2b reports for the Washington Office have been held up pending an analysis of these records before transmitting them to Washington.

Summary of Material Prepared at the Boston Office during 1923.
(at least two copies made of each of the following items)

I Charts. (All large size for exhibit purposes.)

1. Wood Using Industries of New York That Used White Pine in 1919.
2. Pine Acreage in States and Amount of Eradication Work Performed in Each.
3. Blister Rust Control Record System.
4. Eradication Data by States, Arranged by Years 1918-1922.
5. Eradication Data by States, Arranged by States 1918-1922.
6. Effectiveness of Eradication Work and Regrowth of Pine at Kittery Point, Maine. (2 charts)
7. Yearly Acreage Eradicated, Ribes Pulled and Per Acre Values for All States (arranged by yearly steps.)
8. Steps of Progress in Blister Rust Control (1906-1930)
9. Infection Conditions at Springvale, Maine during 1921 and 1922 - (2 charts)
10. Organization of Blister Rust Control Forces in Northeastern States in 1923.
11. Section of a White Pine Block.

II Record Forms

For agents -

1. Daily record note book.
2. Revised interview and examination card.
3. Revised B.R.E.2 - monthly report of blister rust control agents.
4. Revised B.R.E.3 - yearly report of blister rust control agents.

5. Revised B.R.E.W. - weekly itinerary form.
6. Card file, forms for interviews, town data, checking, etc.
7. General file - Guides and folders.
8. Form for listing individual cooperators in states. (For use of agents and state officers)
9. Card for recording Ribes check data on plots or strips. (For use of agents, checkers and specialists)

For State and Federal Officers.

10. Revised B.R.4 - Financial Statement by Projects.
11. Monthly summary report of blister rust control work by states - Form B.R.E.2 a.
12. Yearly summary report of blister rust control work by states - Form B.R.E.2b
13. Yearly State Report Form - Summarizing all blister rust control work by districts. (Form B.R.E. 3a)
14. Yearly State Report Form - Financial statement B.R.E. 4 F
15. Field Forms for recording Ribes eradication data on federal experimental areas - Forms B.R.D. 1 and B.R.D. 2.

Graphs. (all large size for exhibit purposes)

1. Series of three graphs to show infection conditions on New Hampshire strip line run during 1922. (Field data grouped by 1/8 - 1/2 and 1 mile blocks.)
2. Comparison of infection conditions on strip line run in New Hampshire during 1919 and 1922.
3. Infection conditions on New York Strip Line run in 1922.
4. Relation of Ribes to pine infection on New York Strip Line.

Maps.

1. Map showing eradication areas in New Hampshire by years.
2. Map of New England showing towns with pine infection.
3. Map of Northeastern States showing districts of blister rust control agents.
4. Map of Infection area at Swanzey, Massachusetts.

Reports (Special)

1. The Blister Rust Control Work of the Agents - Weaknesses and Remedies.
2. Federal Blister Rust Control and White Pine Policy (Revised at Washington Office).
3. Plan of work for Northeastern States during 1923, including plans for blister rust specialists. (Revised at Washington Office).
4. Studies at Springvale and Kittery Point, Maine.
5. Efficiency of Individual Ribes eradication work in Maine.
6. Elk Mound Infection Study.
7. Blister Rust control conference for 1923.
8. Reports on Hampstead, Newbury and Cabot infection areas revised.
9. Progress report for 1922 work on Eau Galle. Demonstration Control Area - together with many summaries, charts and maps.
10. Seminars in Massachusetts and Vermont.
11. Swanzey infection study on damage caused by cultivated red currants.
12. Progress report on blister rust control work in Northeastern States - August 1923.

13. Progress report on blister rust control work in Northeastern States - November 1923.
14. Observations of blister rust control work in New York, with recommendations for improvement.
15. General Summary of North Hudson Experimental Work.
16. The Control of Blister Rust in the Northeastern States.
17. Annual report - Blister Rust Control Work in the Northeastern States - (Completed in part)

Summaries.

1. Ribes eradication work in Northeastern States 1916-1922.
2. White Pine in Hampshire, Norfolk, Essex, Plymouth and Worcester Counties - (not completed)
3. Annual reports for 1922- " "
4. North Hudson experimental data 1921 & 1922.
5. Eau Galle " " -1922.
6. Monthly B.R.E. 2a reports for each state - 1923.
7. Monthly B.R.E. 2b " " all states "
8. Quarterly B.R.E. 2b reports for " " "
9. Yearly B.R.E. 2b " " " " "
(partly completed)

plans. (definitely developed in writing)

1. Annual blister rust control conference.
2. Agent seminars in each state.
3. Policy and plans for federal inspection according to understanding before annual conference in February 1923.
4. Checking plan for plot and strip line checks.

5. General plan blister rust control work in northeastern states during 1923.
6. Work on Eau Galle demonstration area in 1923.
7. " " Cass Lake " " " "
8. " " North Hudson " " " "
9. " " Swanzey Infection " " "
10. Field trip of Roberts and Ninman.
11. Criticism plans for Educational Material.
12. " " " Administrative regulation of expenses.
13. Procedure with monthly forms and rating of agents by specialists.
14. Outline for State blister rust control policy.

Miscellaneous.

1. Special letters of authorization to state leaders, agents and federal men.
2. Revised filing system for correspondence and reports with card index system.
3. Inventory of material at Boston and in field.
Card file for inventoriable material.
Card file for property charges.
4. Educational material for agents - bulletins, etc.
5. Memoranda to State leaders on twelve subjects general correspondence, etc.

Field Work by E.C. Filler During 1923.

During the year work was performed on 287 days, 28 additional days were used on sick and annual leave. Of the 287 days, 111 or 39% were spent in the field. The percent of time spent in the field during the year was as follows:

Period--Jan.-March--3 months---18%
 " April-Sept.-6 months---50%
 " Oct.-Dec.--3 months---33%
 " Jan.-Dec.--12 months---39%

Summary of Field Trips---E.C. Filler-1923.

Table # 88

State	Me.	N. H.	Mass.	Conn.	Vt.	N. Y.	Minn. Wisc.	Wash. D. C.	Total
No. of Trips	Mar. 4 May Aug. Dec.	Mar. 4 July Sept. Oct.	Jan. 4 June July Oct.	1 June	1 July	Apr. 7 June July Oct., Dec.	1 May	2 April Dec.	24
No. Days	9	24	5	3	4	35	12	19	111

Additional contact with field men was obtained at Boston as follows:

Name	Newman	Riley	Sheals	Anderson	Perry	Allen	Reynolds	Corliss
No. Visits	4	2	5	5	8	2	4	3

Name	Roop	Misc. State & Federal Men	TOTAL
No. Visits	3	100(Est.)	136

Washington Men--Martin-3, (1 in New Haven), Pierce-2, Detwiler-1, Marlott-1, Collingwood-3, TOTAL-10.

TALKS.

Fifteen special talks were given at various state leader and agent conferences and at two meetings of outside organizations.

During the year work was performed on 257 days, 28 additional days were used on sick and annual leave. Of the 285 days, 111 or 39% were spent in the field. The percent of time spent in the field during the year was as follows:

Period--Jan.-Mar.--1927	100--100--100
Apr.-June--1927	100--100--100
July--Sept.--1927	100--100--100
Oct.--Dec.--1927	100--100--100

Summary of Field Time--E. C. Miller-1927.

Month	Days	Field	Home	Other	Y.	H.	Y.	Home	Other	Y.	H.	Y.	Home	Other	Total
Jan.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Feb.	28	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mar.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Apr.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
May	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
June	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
July	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aug.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sept.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Oct.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nov.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dec.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	365	36	36	36	36	36	36	36	36	36	36	36	36	36	36

Additional contact with field was maintained at Boston as follows:

Month	Days	Field	Home	Other	Y.	H.	Y.	Home	Other	Y.	H.	Y.	Home	Other	Total
Jan.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Feb.	28	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mar.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Apr.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
May	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
June	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
July	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aug.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sept.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Oct.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nov.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dec.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	365	36	36	36	36	36	36	36	36	36	36	36	36	36	36

Month	Days	Field	Home	Other	Y.	H.	Y.	Home	Other	Y.	H.	Y.	Home	Other	Total
Jan.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Feb.	28	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mar.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Apr.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
May	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
June	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
July	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aug.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sept.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Oct.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nov.	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dec.	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	365	36	36	36	36	36	36	36	36	36	36	36	36	36	36

Washington non-arrival-3, (1 in New Haven), 1927-1928, 1929-1930, 1931-1932, 1933-1934, 1935-1936, 1937-1938, 1939-1940, 1941-1942, 1943-1944, 1945-1946, 1947-1948, 1949-1950, 1951-1952, 1953-1954, 1955-1956, 1957-1958, 1959-1960, 1961-1962, 1963-1964, 1965-1966, 1967-1968, 1969-1970, 1971-1972, 1973-1974, 1975-1976, 1977-1978, 1979-1980, 1981-1982, 1983-1984, 1985-1986, 1987-1988, 1989-1990, 1991-1992, 1993-1994, 1995-1996, 1997-1998, 1999-2000, 2001-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, 2011-2012, 2013-2014, 2015-2016, 2017-2018, 2019-2020, 2021-2022, 2023-2024, 2025-2026, 2027-2028, 2029-2030, 2031-2032, 2033-2034, 2035-2036, 2037-2038, 2039-2040, 2041-2042, 2043-2044, 2045-2046, 2047-2048, 2049-2050, 2051-2052, 2053-2054, 2055-2056, 2057-2058, 2059-2060, 2061-2062, 2063-2064, 2065-2066, 2067-2068, 2069-2070, 2071-2072, 2073-2074, 2075-2076, 2077-2078, 2079-2080, 2081-2082, 2083-2084, 2085-2086, 2087-2088, 2089-2090, 2091-2092, 2093-2094, 2095-2096, 2097-2098, 2099-2100, 2101-2102, 2103-2104, 2105-2106, 2107-2108, 2109-2110, 2111-2112, 2113-2114, 2115-2116, 2117-2118, 2119-2120, 2121-2122, 2123-2124, 2125-2126, 2127-2128, 2129-2130, 2131-2132, 2133-2134, 2135-2136, 2137-2138, 2139-2140, 2141-2142, 2143-2144, 2145-2146, 2147-2148, 2149-2150, 2151-2152, 2153-2154, 2155-2156, 2157-2158, 2159-2160, 2161-2162, 2163-2164, 2165-2166, 2167-2168, 2169-2170, 2171-2172, 2173-2174, 2175-2176, 2177-2178, 2179-2180, 2181-2182, 2183-2184, 2185-2186, 2187-2188, 2189-2190, 2191-2192, 2193-2194, 2195-2196, 2197-2198, 2199-2200, 2201-2202, 2203-2204, 2205-2206, 2207-2208, 2209-2210, 2211-2212, 2213-2214, 2215-2216, 2217-2218, 2219-2220, 2221-2222, 2223-2224, 2225-2226, 2227-2228, 2229-2230, 2231-2232, 2233-2234, 2235-2236, 2237-2238, 2239-2240, 2241-2242, 2243-2244, 2245-2246, 2247-2248, 2249-2250, 2251-2252, 2253-2254, 2255-2256, 2257-2258, 2259-2260, 2261-2262, 2263-2264, 2265-2266, 2267-2268, 2269-2270, 2271-2272, 2273-2274, 2275-2276, 2277-2278, 2279-2280, 2281-2282, 2283-2284, 2285-2286, 2287-2288, 2289-2290, 2291-2292, 2293-2294, 2295-2296, 2297-2298, 2299-2300, 2301-2302, 2303-2304, 2305-2306, 2307-2308, 2309-2310, 2311-2312, 2313-2314, 2315-2316, 2317-2318, 2319-2320, 2321-2322, 2323-2324, 2325-2326, 2327-2328, 2329-2330, 2331-2332, 2333-2334, 2335-2336, 2337-2338, 2339-2340, 2341-2342, 2343-2344, 2345-2346, 2347-2348, 2349-2350, 2351-2352, 2353-2354, 2355-2356, 2357-2358, 2359-2360, 2361-2362, 2363-2364, 2365-2366, 2367-2368, 2369-2370, 2371-2372, 2373-2374, 2375-2376, 2377-2378, 2379-2380, 2381-2382, 2383-2384, 2385-2386, 2387-2388, 2389-2390, 2391-2392, 2393-2394, 2395-2396, 2397-2398, 2399-2400, 2401-2402, 2403-2404, 2405-2406, 2407-2408, 2409-2410, 2411-2412, 2413-2414, 2415-2416, 2417-2418, 2419-2420, 2421-2422, 2423-2424, 2425-2426, 2427-2428, 2429-2430, 2431-2432, 2433-2434, 2435-2436, 2437-2438, 2439-2440, 2441-2442, 2443-2444, 2445-2446, 2447-2448, 2449-2450, 2451-2452, 2453-2454, 2455-2456, 2457-2458, 2459-2460, 2461-2462, 2463-2464, 2465-2466, 2467-2468, 2469-2470, 2471-2472, 2473-2474, 2475-2476, 2477-2478, 2479-2480, 2481-2482, 2483-2484, 2485-2486, 2487-2488, 2489-2490, 2491-2492, 2493-2494, 2495-2496, 2497-2498, 2499-2500, 2501-2502, 2503-2504, 2505-2506, 2507-2508, 2509-2510, 2511-2512, 2513-2514, 2515-2516, 2517-2518, 2519-2520, 2521-2522, 2523-2524, 2525-2526, 2527-2528, 2529-2530, 2531-2532, 2533-2534, 2535-2536, 2537-2538, 2539-2540, 2541-2542, 2543-2544, 2545-2546, 2547-2548, 2549-2550, 2551-2552, 2553-2554, 2555-2556, 2557-2558, 2559-2560, 2561-2562, 2563-2564, 2565-2566, 2567-2568, 2569-2570, 2571-2572, 2573-2574, 2575-2576, 2577-2578, 2579-2580, 2581-2582, 2583-2584, 2585-2586, 2587-2588, 2589-2590, 2591-2592, 2593-2594, 2595-2596, 2597-2598, 2599-2600, 2601-2602, 2603-2604, 2605-2606, 2607-2608, 2609-2610, 2611-2612, 2613-2614, 2615-2616, 2617-2618, 2619-2620, 2621-2622, 2623-2624, 2625-2626, 2627-2628, 2629-2630, 2631-2632, 2633-2634, 2635-2636, 2637-2638, 2639-2640, 2641-2642, 2643-2644, 2645-2646, 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2829-2830, 2831-2832, 2833-2834, 2835-2836, 2837-2838, 2839-2840, 2841-2842, 2843-2844, 2845-2846, 2847-2848, 2849-2850, 2851-2852, 2853-2854, 2855-2856, 2857-2858, 2859-2860, 2861-2862, 2863-2864, 2865-2866, 2867-2868, 2869-2870, 2871-2872, 2873-2874, 2875-2876, 2877-2878, 2879-2880, 2881-2882, 2883-2884, 2885-2886, 2887-2888, 2889-2890, 2891-2892, 2893-2894, 2895-2896, 2897-2898, 2899-2900, 2901-2902, 2903-2904, 2905-2906, 2907-2908, 2909-2910, 2911-2912, 2913-2914, 2915-2916, 2917-2918, 2919-2920, 2921-2922, 2923-2924, 2925-2926, 2927-2928, 2929-2930, 2931-2932, 2933-2934, 2935-2936, 2937-2938, 2939-2940, 2941-2942, 2943-2944, 2945-2946, 2947-2948, 2949-2950, 2951-2952, 2953-2954, 2955-2956, 2957-2958, 2959-2960, 2961-2962, 2963-2964, 2965-2966, 2967-2968, 2969-2970, 2971-2972, 2973-2974, 2975-2976, 2977-2978, 2979-2980, 2981-2982, 2983-2984, 2985-2986, 2987-2988, 2989-2990, 2991-2992, 2993-2994, 2995-2996, 2997-2998, 2999-3000, 3001-3002, 3003-3004, 3005-3006, 3007-3008, 3009-3010, 3011-3012, 3013-3014, 3015-3016, 3017-3018, 3019-3020, 3021-3022, 3023-3024, 3025-3026, 3027-3028, 3029-3030, 3031-3032, 3033-3034, 3035-3036, 3037-3038, 3039-3040, 3041-3042, 3043-3044, 3045-3046, 3047-3048, 3049-3050, 3051-3052, 3053-3054, 3055-3056, 3057-3058, 3059-3060, 3061-3062, 3063-3064, 3065-3066, 3067-3068, 3069-3070, 3071-3072, 3073-3074, 3075-3076, 3077-3078, 3079-3080, 3081-3082, 3083-3084, 3085-3086, 3087-3088, 3089-3090, 3091-3092, 3093-3094, 3095-3096, 3097-3098, 3099-3100, 3101-3102, 3103-3104, 3105-3106, 3107-3108, 3109-3110, 3111-3112, 3113-3114, 3115-3116, 3117-3118, 3119-3120, 3121-3122, 3123-3124, 3125-3126, 3127-3128, 3129-3130, 3131-3132, 3133-3134, 3135-3136, 3137-3138, 3139-3140, 3141-3142, 3143-3144, 3145-3146, 3147-3148, 3149-3150, 3151-3152, 3153-3154, 3155-3156, 3157-3158, 3159-3160, 3161-3162, 3163-3164, 3165-3166, 3167-3168, 3169-3170, 3171-3172, 3173-3174, 3175-3176, 3177-3178, 3179-3180, 3181-3182, 3183-3184, 3185-3186, 3187-3188, 3189-3190, 3191-3192, 3193-3194, 3195-3196, 3197-3198, 3199-3200, 3201-3202, 3203-3204, 3205-3206, 3207-3208, 3209-3210, 3211-3212, 3213-3214, 3215-3216, 3217-3218, 3219-3220, 3221-3222, 3223-3224, 3225-3226, 3227-3228, 3229-3230, 3231-3232, 3233-3234, 3235-3236, 3237-3238, 3239-3240, 3241-3242, 3243-3244, 3245-3246, 3247-3248, 3249-3250, 3251-3252, 3253-3254, 3255-3256, 3257-3258, 3259-3260, 3261-3262, 3263-3264, 3265-3266, 3267-3268, 3269-3270, 3271-3272, 3273-3274, 3275-3276, 3277-3278, 3279-

Itinerary for E. C. Filler--1923.

- January 1-10. Boston, Mass. General office work: graphs, charts, record forms. Conferences with Newman, Perry, Roop, Martin and other federal men.
- Jan. 11-12. Amherst and Westfield, Mass. Conferences with Dr. Martin, Hodgkins and agent Hill.
- Jan. 13 - Feb. 17. Boston, Mass. General office work: charts, maps, reports; plans for Ninman and Roberts, demonstration areas, plans for annual conference. Conferences with Perry, Anderson, Sheals, Detwiler and other federal men. Annual conference.
- Feb. 9-March 6. Sick leave.
- March 7-20. Plans for blister rust seminars and general office work. Talk for Westfield meeting.
- March 21-24. Bangor and Orono, Me. At Maine agents' seminar. Conferences with Frost, York, Violette, Briscoe and Maine agents. Gave two talks at seminar.
- March 26. Boston, Mass. General office work.
- March 27-31. At N. H. agents' seminar. Gave two talks to agents. Conferences with Newman, Corliss, Foster, York and N. H. agents.
- April 2-7. Boston, Mass. Plans for work on Eau Galle and North Hudson demonstration areas and New York agents' seminar.
- April 8-14. Albany and Warrensburg, N. Y. At blister rust agent's seminar. Gave two talks to agents. Attended field demonstrations at Warrensburg with Collingwood, Burritt, Fivaz, Amadon, York and New York agents.
- April 16-23. Washington, D. C. Developing plans for 1923 work with Dr. Martin and S. B. Detwiler.
- April 24-25. Boston, Mass. General office work.
- April 26-30. Albany and Syracuse, N. Y. Conferences with Amadon, Taylor and Collingwood, helped develop plan of work for n. Y. men. Visited college at Syracuse. Hired men for North Hudson work.
- May 1-2. Boston, Mass. General office work.

- May 3-5. Portland, Me. Conference with Dana, Frost and Maine agents re plan of work for year.
- May 7-14. Boston, Mass. Individual conferences with Newman, Perry, Riley, Sheals regarding plans for season. Conference with Reynolds and federal men. Reclassification--Inventory--Reports, etc.
- May 15-27. Madison and Eau Galle, Wisc. and St. Paul, Minn. Conferences with Fracker, Ninman and Thompson regarding season's work in state and on demonstration area. Conference with Cox, Roberts, Braden, Anderson, Ruggles, Henson and Pieraly. Visited college at Syracuse. Hired men for North Hudson. Conference with Amadon, Pettis and Taylor at Albany, N. Y.
- May 28--June 12. Conferences with Corliss, Pierce, Posey and federal men. Plans of work for East and specialist plan. Chart of organization--general office work.
- June 13-15. New Haven, Winsted, Canaan, Conn. Conferences with Dr. Martin, Filley, Hicock, Round. Visited two crews in field with Hicock, plan of work for year.
- June 16-20. Boston, Mass. General office work.
- June 21-28. Chestertown, North Hudson, N. Y. Inspecting work at North Hudson demonstration area and developing special plans--training men, etc.
- June 29--July 3. Boston, Mass. General office work.
- July 4-6. Albany, N. Y. Conferences with Pettis, York, Amadon and Fivaz--developed plans for work.
- July 7-16. Boston, Mass. General office work.
- July 17-28. Concord, N.H., Keene, N.H., Brattleboro, Vt., Lebanon, N.H., Montpelier, Vt., Burlington, Vt., North Hudson and Warrensburg, N.Y., Orange, Mass. Conferences to develop plans of work and to inspect field results. Visited Newman, Corliss, Baker, Holden, Rose, Hastings, Bailey, Riley, Morse, Fivaz, Prentice, Amadon and Merrick, also spent four days inspecting and assisting work at North Hudson.
- July 28--Aug. 14. Boston, Mass. General office work. Conferences with Perry, Anderson, Sheals, Corliss and federal men. Progress report--Inventory, plans, record forms, etc.
- Aug 15-16. Augusta, Me. Conference with Frost and Violette re plans for work.

Aug. 17--Sept. 1. Boston, Mass. Conferences with Riley, Perry, Newman, Fivaz, Hodgkins, Endersbee. General office work--Inventory--forms for annual state blister rust reports (educational and financial) etc.

Sept. 4. Annual leave.

Sept. 5-7. Concord, Plymouth, N.H. Conference with Newman, Foster, Reynolds, Collingwood, Kendall, Woodward, Ayers, also other state and federal men on blister rust work.

Sept. 8-15. On annual leave.

Sept. 17. Boston, Mass. Plans for strip line work in N. H. Conference with federal men.

Sept. 18--Oct. 2. Concord, Littleton, Landaff, N.H. Conference with Newman and Corliss. Scouting and running strip lines through 1918 eradication areas to determine effectiveness of control work. Conferences with state and federal men. Visited Hooksett infection area with Newman.

Oct. 3. Boston, Mass. General office work. Conference with Dr. Martin.

Oct. 4-11. Greenfield, Mass., North Hudson, N.Y. Conference with Morse, York, Fivaz and state agents. Inspected work on demonstration area. Conference with Putnam and Rankin. State leader's conference at Chestertown, N.Y.

Oct. 12-Dec. 5. Boston, Mass. Office work. Estimate of expenditures 1925, annual report, eradication summaries, charts, plans, conferences with Reynolds, Anderson, Putnam, Sheals, Worthly, Perry, Roop, Sibly, Morlatt and federal men. Worked on North Hudson data, report on leader's meeting--progress report. Attended conference of Mass. agents, gave two talks. Plans for Maine work.

Dec. 6-7. Attended agents' meeting at Portland, Me. Gave two talks to agents.

Dec. 8. Boston, Mass. General office work.

Dec. 10-20. Washington, D. C. Paper on control work in Northeastern States. General plans. Conference with men at Washington Office.

Dec. 21-22. Albany, N. Y. Conferences with York and Amadon regarding 1924 plan of work.

Dec. 24-31. On annual leave.

Sept. 17-Sept. 18. Boston, Mass. Conference with Miss
Perry, Newman, Rivers, Reynolds, and others. General
office work--investigation for annual state director
last reports (educational and financial) etc.

Sept. 19. Annual leave.

Sept. 20-Sept. 21. Concord, N.H. Conference with Newman,
Porter, Reynolds, Coffinwood, Fenhall, Woodwell, and
also other state and federal men on disaster relief work.

Sept. 22-23. On annual leave.

Sept. 24. Boston, Mass. Plans for state line work in N. H.
Conference with federal men.

Sept. 25-Oct. 2. Concord, N.H. Conference
with Newman and others. Excursion and running trip
lines through 1915 exhibition areas to determine effec-
tiveness of control work. Conferences with state and
federal men. Visited Hooksett exhibition area with
Newman.

Oct. 3. Boston, Mass. General office work. Conference with
Dr. Martin.

Oct. 4-11. Greenfield, Mass. North Adams, N.Y. Conference
with Moore, York, and state agents. Inspected
work on demonstration area. Conference with federal men
and state leaders at Greenfield, N.Y.

Oct. 12-Dec. 5. Boston, Mass. Office work. Estimate of
expenditures 1915, annual report, graduation exercises,
charts, plans, conferences with Reynolds, Fenhall,
Porter, Seale, Terry, Good, Riley, Norlett
and federal men. Worked on North Adams area, report
on leaders meeting--progress report. Attended confer-
ence of Mass. agents, gave two talks. Plans for future
work.

Dec. 6-7. Attended agents' meeting at Portland, Me. Gave
two talks to agents.

Dec. 8. Boston, Mass. General office work.

Dec. 13-20. Washington, D. C. Report on control work in
Northeastern States. General plans. Conference with
men at Washington Office.

Dec. 21-22. Albany, N. Y. Conference with York and Amason
regarding 1915 plan of work.

Dec. 23-24. On annual leave.

During the year the federal supervisor had close contact with Endersbee, Fivaz and Hodgkins. Contacts were made in the field or at the Boston Office with these men as follows: Endersbee,--every month of the year except July, November and December; Fivaz,--every month except May, September, November and December. Hodgkins, while in the East--every month except July and December. Dr. Martin was seen three times in the field and twice at Washington. Two trips covering 19 days (April and December) were made to the Washington Office. Adequate contact was maintained with the state leaders in the field or at the Boston Office except Hicock.

Only one trip of 3 days was spent with this leader. All the state cooperators were seen at least once during the year and those in N. H., N. Y., Mass. and Maine each three or four times. Conferences were held with the state directors of extension in N. Y., Mass., and N. H. All of the blister rust control agents except Hick, Stevens and Bradder were seen during the year, either at agent conferences or by special field visits. While the field work was in progress at North Hudson three special trips, each of several days, were made to inspect and develop this project, also over two weeks was spent on a special study at Landaff and Littleton, N.H. to determine the effectiveness of control work. During 1924 a special effort will be made to obtain closer contact with the extension forces, the Washington Office, and the state cooperators.

Federal Blister Rust Control Specialists.

The blister rust specialist was a new unit incorporated into the control work during 1923, the specialist replacing the federal inspector. Before any field work was begun by the specialists a definite policy and general plan of work was developed. The Northeastern States were divided into three districts: (1) Maine and N. H. (2) Mass., R. I., and Conn. (3) New York and Vt. Fivaz was assigned to district III, beginning work there the latter part of March. Endersbee did not start work as a specialist in district II until the last of July, as it was necessary to have him summarize the North Hudson experimental data in order that plans could be made for the 1923 work, also due to facial paralysis Endersbee was not in condition for field work.

When Fivaz began work in N. Y. chaotic conditions existed; Amadon was spending his time in the office and on state land

During the year the Federal Government was also concerned with education, health and social welfare. The following table shows the results of the year's work in these fields: (1) Education - The Federal Government has been active in the field of education, particularly in the area of vocational training. It has established the Federal Bureau of Investigation, which is now the largest of its kind in the world. (2) Health - The Federal Government has been active in the field of health, particularly in the area of public health. It has established the Federal Bureau of Investigation, which is now the largest of its kind in the world. (3) Social Welfare - The Federal Government has been active in the field of social welfare, particularly in the area of public welfare. It has established the Federal Bureau of Investigation, which is now the largest of its kind in the world.

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work, the agents were shifting for themselves. Arrangements were made to allow Fivaz to act as an assistant leader in charge of the work of the blister rust control agents under Amadon. This procedure continued until September when Fivaz began a special study to determine the effectiveness of control work on some eradication areas worked in 1918. As a result of Fivaz's efforts the New York work was put on its feet before York's arrival in July. Meanwhile the real specialist work had been sacrificed to a large extent. In the summer it became apparent that York and Amadon regarded Fivaz as a state man, and even Fivaz began to think of himself more or less in this light. To overcome this tendency Fivaz was given more federal contact. The need for Fivaz's services was so great in New York, and the state men urged so strongly that he be allowed to remain there, that the specialist work in Vermont was badly slighted. Fivaz made only one trip among the Vermont agents during the year.

I cannot speak too highly of Fivaz's good work in New York. He was continually interested, willing, plugging, full of ideas for developing the work. He got along well with the field men and gave more effort and thought to his job than any man on the work. York and Amadon have commended Fivaz's work several times. Riley also speaks well of Fivaz and has urged him to spend as much time as possible in Vermont. In some respects Fivaz was fortunate in his work. New York was badly in need of someone to supervise the work of the blister rust control agents just at the time Fivaz began operations. Consequently Fivaz had almost a free hand. Also, there was very little of the federal inspector idea to live down in his district, as no such men had been used in New York and only a very little inspection had been done in Vermont. Riley is also a most broadminded and agreeable leader who will always go at least half way to help get anything worthwhile started.

In the Maine-New Hampshire district things were different. The work was fairly well organized and the leaders firmly established and still harboring the idea of federal inspection in a new dress. On the whole Endersbee received a good reception in New Hampshire, which can be attributed in a large degree to Corliss' backing of Endersbee's work. Endersbee spent July and August in New Hampshire, except for one trip among the Maine agents, and then was put on special work for about six weeks getting data to show the effectiveness of eradication work in controlling the disease. After this, special damage plots were laid out in N. H. with the assistance of the agents.

Frost was antagonistic to the specialist plan from the beginning inspite of Dana's approval and Endersbee's and my efforts to show him the value of a specialist's services. He continually expressed his views along this line, even to his agents so that they reflected his attitude to some extent.

Because of Frost's attitude Endersbee confined most of his work to New Hampshire, the idea being to create a demand for his services in Maine. The plan worked--soon Frost asked Endersbee to lay out similar damage study plots in Maine. When Endersbee got ready to do this work in November, Frost urged it be postponed until after the holidays. At the state leaders meeting in October Newman spoke well of Endersbee's work and Frost requested Endersbee's assistance in laying out study plots. On the whole Endersbee has made a fairly good start, especially in New Hampshire.

Considering the blister rust specialist's work as a whole during 1923, the following points should be noted; no blister rust specialist was employed in southern New England. Due to conditions in the other districts only a start was made in the specialist work during 1923, however enough was accomplished to show definitely the need and use of specialists. Even in the states, the leaders pointed out this need. Praiseworthy and needed results were obtained by the specialists, although very little actual specialist work was done. One prominent weakness in the specialist work was a lack of a comprehensive plan of work and calendar covering all phases of the specialist's duties. As a result too much hit or miss work was done. The work was not sufficiently studied, planned and organized and all available forces utilized in carrying out the control program. There was a decided lack of sufficient contact with the extension forces. Plans to overcome these weaknesses were developed and have been put into practice during 1924. This year should see the specialists functioning normally and effectively in blister rust control work.

Attached to this report are copies of Endersbee's and Fivaz's annual reports which cover in detail the work done by these men.

Special Work---Hodgkins

During 1923, Hodgkins was rather a jack of all trades, or general utility man. About five months of the year he worked on quarantine inspection, one month scouting in Pa., and six weeks at Littleton, N. H. on a study to determine the effectiveness of eradication work in controlling the disease. The remainder of his time was used in training scouts in Maine and New York, and in scouting, inspecting the agents work, and laying out damage study plots in Mass. As usual Hodgkins performed his tasks well and faithfully, showing a keen interest in his work. Attached to this report is a statement prepared by Hodgkins summarizing his activities during the year.

During 1950, the year should see the specialists functioning normally and effectively in their most control work.

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Federal Experimental Work in Blister Rust Control-1923.

The experimental work will be discussed under three headings--Eau Galle area, North Hudson study and Richard's work. Due to the abundance of other work it was impossible for the federal supervisor to give as much time to this phase of the control program as its importance deserves. Only one visit was made to the Eau Galle area and three to the North Hudson during the summer months, however each of these inspections were of sufficient length to cover the needs of the time.

Eau Galle.

The Office of Blister Rust Control was fortunate in that Streater left the Eau Galle data for 1922 completely summarized and had a detailed plan developed for the 1923 work before he resigned April 30th. In addition Thompson who took charge of the experiment in 1923 was well acquainted with the area and the experiment. Thus after the federal supervisor had started him off, he was able to effectively carry out Streater's 1923 plans without difficulty. Thompson did a most creditable piece of work at a very low cost. He completed all eradication work on the area, special crew studies, the various plot studies and wrote a good report on the season's work. All notes, records and maps were made and filed in the most approved manner. Further field work on the area will consist merely of checking the various study plots, as outlined in the detailed plan of the work. All the field and office data connected with this experiment has been sent to Washington where the 1923 work will be summarized and analyzed and the totals added to the 1922 tabulations. Very valuable statistics should be obtained on various eradication methods, ecological ^{data} studies of Ribes, efficiency of Ribes eradication, etc. Attached to this report is a copy of Thompson's detailed report on the 1923 work at Eau Galle.

North Hudson

Since the selective Ribes eradication experiment was begun at North Hudson in 1921, each year a different man has had charge of the field work. In 1921, Mr. Brooks had charge of the experiment and worked under the direct supervision of the Washington Office of Blister Rust Control. The field work in 1922 and 1923 was carried on by Messrs Toumey and Putnam respectively, under the general direction of the Boston Office.

The experimental work will be continued under the direction of the California State Department of Agriculture. The results of the work will be reported to the California State Department of Agriculture. The results of the work will be reported to the California State Department of Agriculture.

San Diego

The Office of the Director of the California State Department of Agriculture has been advised that the results of the work will be reported to the California State Department of Agriculture. The results of the work will be reported to the California State Department of Agriculture.

North San Diego

Since the selective breeding of the California State Department of Agriculture has been advised that the results of the work will be reported to the California State Department of Agriculture. The results of the work will be reported to the California State Department of Agriculture.

During the last two years efforts were made merely to complete the work as outlined in the original plans made by Brooks. The only additions to Brooks' plans were special arrangements made for checking the Ribes regrowth and pine infection developing since the plots were originally covered for Ribes, and a detailed study made to compare the work of a state crew with a special crew using the most improved methods.

None of the federal men except Carauthers employed at North Hudson in 1923, had previously been connected with the work, also the caliber of these men was not as high as those used in 1922. Consequently a large part of the 35 days spent by the federal supervisor in New York was given to this project. In addition, Fivaz also gave general supervision to this work during August and September. The 1923 work on the area produced the following main results:

1. Completed all Ribes eradication.
2. Checked all plots for Ribes regrowth.
3. Checked three plots for pine infection developing since eradication work.
4. Obtained comparative figures on state crew work and a special crew using improved methods.
5. Repainted all plot and area boundaries, eradication lines, etc.

Further work in the area will consist of rechecking the plots for Ribes regrowth and pine infection to determine the effectiveness of the control work. It may also be desirable to examine the pine on a strip a hundred feet or so wide inside the selective eradication lines in order to determine if the protection strips are of sufficient width to control the disease. No work is needed on the North Hudson area during 1924. All field data for this experiment has been sent to the Washington Office where it will be summarized and analyzed. Up until the spring of 1923, no attempt had been made to summarize any of the North Hudson data. Endersbee spent several weeks during April and May summarizing the pine data in the plots and in helping to develop plans for the 1923 work on the area. Accompanying this report is a detailed statement prepared by Putnam summarizing the 1923 work on the North Hudson Demonstration area.

During the last two years efforts were made to complete the work as outlined in the original plan made by Hudson. The only additions to the original plan were special arrangements made for checking the other regions and this infection developing since the plots were originally covered for fiber and a detailed study made to determine the work of a state crew with a special crew using the most improved methods.

None of the material was recent but was employed at North Hudson in 1937. Had previously been connected with the work, also the caliber of these men was not as high as those used in 1937. Consequently a large part of the 30 days spent by the federal supervisor in New York was given to this project. In addition, Vivas also gave general supervision to this work during August and September. The 1937 work on the area provided the following summary:

1. Completed all fiber collection.
2. Checked all plots for fiber removal.
3. Checked three plots for fiber infection developing since collection work.
4. Obtained comparative figures on state crew work and a special crew using improved methods.
5. Reported all fiber and area boundaries, collection lines, etc.

Further work in the area will consist of collecting the plots for fiber removal and fiber infection to determine the effectiveness of the control work. It may also be desirable to examine the area on a basis of a limited test of so wide as the selective collection lines in order to determine if the collection lines are of sufficient width to control the disease. No work is needed on the North Hudson area during 1937. All field data for this experiment has been sent to the sanitation office where it will be summarized and analyzed. By early spring of 1937, no attempt had been made to summarize any of the North Hudson data. Underneath about several weeks during April and May summarizing the data in the plots and in relation to having them for the 1937 work on the area. Consequently this report is a detailed statement prepared by the sanitation office and 1937 work on the North Hudson sanitation area.

Richards' Work.

Richards spent the entire year of 1923 in Boston summarizing and analyzing the field data obtained at Temple, N. H. during 1920 and 1921 on the reach of *Cronartium ribicola* from a definite patch of *Ribes nigrum*. The material was finally presented in a complete report together with maps, charts, etc. and submitted to the Washington Office. Richards was then called into the Washington Office where the report was revised, however the revision had not been completed when he resigned March 23, 1924. The federal supervisor gave only general supervision to Richards' work as the work was of such a nature that the supervisor could do little beyond endeavoring to maintain consistent, steady progress on this project.

Richardson spent the entire year of 1951 in England, summarizing and analyzing the field work material at Oxford. In June 1950 and 1951 on the basis of Richardson's typology from a preliminary paper of 1949. The material was finally presented in a complete revised report with notes, charts, etc. and submitted to the Washington Office. Richardson was then called into the Washington Office where the report was revised. However, the revision had not been completed when he resigned March 15, 1952. The Federal University gave only partial recognition to Richardson's work as the work was of such a nature that the Government could do little beyond endeavoring to maintain contact, partly because of this project.

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Federal Expenditures for Federal Men on Blister Rust Control Work in Northeastern
and Lake States During Calendar Year--1923.

Table # 89

Name	Period Worked	Total Salary	EXPENSES							Total Expenses	Total Salary and Expenses
			Expense Vouchers	R.R. Transp.	Tele. and Telegr.	Maps, Negatives, & drafting	Auto re- pairs & storage	Wages temp. clerks	Wages temp. Asst.	Misc.	
Filler	Year	\$3240.00 & Bonus	\$635.81	\$347.15	\$166.73	\$79.09	\$241.03	\$243.	\$166.00	-	\$1878.81
Endersbee	"	2140.00	521.66	141.33	-	-	229.11	-	130.00	*1 \$50.00	3212.10
Fivaz	"	1900.00	1148.17	189.45	-	-	-	-	-	-	3237.62
Hodgkins	"	1800.00 & Bonus	1227.43	432.34	-	-	-	-	-	-	3459.77
Richards	"	1800.00 & Bonus	933.06	120.00	-	-	-	-	3.00	-	2856.06
Tapper	Jan. 1- Oct. 6.	923.50 & Bonus	-	-	-	-	-	-	-	-	923.50
Ludgate	Jan. 1- Apr. 30	400.00	-	-	-	-	-	-	-	-	400.00
Stimson	Jan. 1- May 5.	520.83	-	-	-	-	-	-	-	-	520.83
Streator	Jan. 1- Apr. 30	600.00	*4	-	-	-	-	-	-	-	600.00
Men at No. Hudson, N.Y.	June- Oct. 31	1693.24	-	-	-	-	-	-	*2 642.40	*3 700.33	3035.97
Thompson (Eau Galle)	May 25- Sept. 30	650.00	182.81	-	-	-	-	-	941.19	511.19	1754.00
GRAND TOTALS		15647.57	\$4648.94	1230.27	\$166.73	\$79.09	\$470.14	\$243.	1882.59	\$750.33	\$25118.66

*1-Cost of moving Endersbee to Rochester, N. H. *2 Cost of crew laborers employed at North Hudson, N. Y.
charged against E. C. Filler's letter of authorization. *3-Expenses for operating trucks at North
Hudson, N. Y. and expense vouchers of men. *4-Streator's expenses (about \$20) not included.

SUMMARY OF COSTS
BY PROJECTS

Experimental Work-(North Hudson, Eau Galle,
Richards, Streator, Ludgate)-----\$8,646.03
Federal Supervision-(Filler, Endersbee, Fivaz)-----10,263.57
Boston Office-(Tapper, Stimson, Temp. clerks)-----1,687.33
Boston Office-Telephone, telegraphs, maps,
drafting-----245.82
Auto Storage & Repairs, etc.-(Endersbee, Filler)-----470.14
Temporary Field Assistants of " " 296.00
Moving Endersbee to Rochester, N. H.-----50.00
Hodgkins on quarantine inspection, scouting in Pa.,
and miscellaneous work-----3,459.77
TOTAL-----\$25,118.66

Table #89 shows the federal expenditures for strictly federal men employed on blister rust control work in the Northeastern and Lake States during 1923 amounted to \$25,118.66. This total was expended as follows: federal supervision-(Filler, Endersbee and Fivaz)-\$10,263.57 or 48.6%, experimental work-North Hudson, \$3,035.97, Eau Galle-(Thompson and men, Streater, Ludgate)-\$2,754., Richards-(Temple area)-\$2,856.06 or a total for experimental work of \$8,646.03 or 34.4%, special work by Hodgkins-quarantine inspection, scouting in Pa., special studies in N. H. and misc.-\$3,459.77 or 13.7%; Boston Office-(Tapper, Stimson and temporary clerk)-\$1,687.33 or 6.7%; auto storage, repairs, etc. for Govt. cars of Endersbee and Filler-\$470.14 or 1.8%; temporary field assistants for Filler and Endersbee-\$296. or 1.1%; Boston Office, telephone, telegraphs, maps, negatives, drafting-\$245.82 or .9%; moving Endersbee's furniture to Rochester, N. H.-\$50. or .2%. During the year only five men Filler, Endersbee, Fivaz, Hodgkins and Richards were employed permanently. Two additional permanent employees, Streater and Tapper, resigned during 1923 and Richards resigned on March 23, 1924. A total of \$17,773.16 was expended for wages of all permanent and temporary entirely federal employees in the Northeastern and Lake States during 1923. The expenses of the five permanent men as given in the expense vouchers totaled \$4,466.13 and an additional \$1,230.27 for R. R. transportation. Endersbee and Fivaz received salary increases during the year. Endersbee's salary was raised from \$2040. to \$2280. and the bonus, and Fivaz's salary was increased from \$1800. to \$2040. without the bonus. Expenditures in 1924 will be reduced because only six permanent men will be employed-Filler, Endersbee, Fivaz, Hodgkins, Stimson and possibly a specialist in southern New England. Very little temporary assistance will be needed, as no work will be done at North Hudson and only a very little at Eau Galle. The plan of federal work for 1924 will show this information in detail.

in detail.

COOPERATIVE BLISTER RUST CONTROL WORK
IN THE NORTHEASTERN AND LAKE STATES.

General Summary of the Work.

The white pine blister rust (*Cronartium ribicola*) was unknowingly imported into this country from Europe about 1900. Here it was first found at Geneva, N. Y., in 1906 on cultivated black currants and in 1909 on planted white pine. A warning of its dangerous nature was issued and attempts made to eradicate the disease by systematic examination and destruction of imported white pines wherever the disease was found. This proved unsuccessful as the rust was found on native pine and *Ribes* over a large area in western Massachusetts in the fall of 1915.

Systematic scouting in 1916 showed the blister rust was generally established in the Northeastern and Lake States. An immediate conference of State and Federal officials and others interested in the forest resources of the country was held to consider the problem. All hope of eradicating the disease was abandoned and it was agreed that the only way to meet the situation was to undertake the development of practical local control measures. Accordingly in 1917, the federal government in cooperation with the infected states began experimental control work. During the period 1917 to 1921 inclusive, practical control measures were cooperatively developed which can be applied by individual pine owners through local eradication of *Ribes*.

In order to produce white pine it is essential that blister rust control work become a part of the regular procedure of growing this valuable crop, but pine owners in general do not know the disease or the different kinds of wild *Ribes*, and are not familiar with the effective methods of their removal. Without this knowledge control work cannot be accomplished. It was to meet this need, and thus assure continued production of an essential timber crop that the Federal Department of Agriculture, in 1922, entered into the present 8 year blister rust control program with the Northeastern and Lake States. This program is a joint project of the cooperating states and the Federal government. The purpose of the program is to accomplish during the period 1922-1930, the general control of the disease through *Ribes* eradication by cooperators (individuals, towns, and states) in regions where white pine is an important crop. Also it is expected that by the end of the program the methods of applying local control, the need for continued watchfulness for the disease and the necessity of occasional rescouting control areas for *Ribes* will, in general, be sufficiently well understood to enable pine owners to successfully cope with the blister rust. However, their attention will be called to the dangers

[illegible]

Sheets 203+204 are more
or less a repetition of
pages 2+3. They are
given here so this part
of the report on General
plan of work will be
complete if used separately
for any purpose.

E C F

incident to Ribes regrowth. After the present emergency is over, such other educational service or regulatory assistance as they may need will be furnished through the usual channels.

State and federal cooperative funds used on experimental demonstration control areas in developing effective and cheap methods of finding and destroying Ribes and in ascertaining if they could be thoroughly enough removed to prevent commercial damage to pine, resulted in the eradication of these bushes on 1,335,767 acres and the reduction of average per acre costs from 74.0 to 18.7 cents. Under the cooperative 8-year program 481,466 acres were eradicated of Ribes in 1922 and 895,986 acres in 1923 or a total of 1,377,452 acres. In other words more area was cleared of Ribes in 1922 and 1923 than during the five year period 1917 to 1921 inclusive. This increase in the volume of work is a direct result of the efficiency of the new control program. A grand total of 2,703,219 acres have been eradicated of Ribes.

Present Status.

The white pine growth of New England and New York covers 8,176,000 acres and is valued at \$217,950,400. Of this acreage 58% contains growth under 20 years old. Here in the Northeastern States the blister rust is most serious. In Wisconsin and Minnesota, the 6,300,000 acres of white pine growth is valued at 177 million dollars. Minnesota alone has 5½ million acres of white pine, but less than 10% contains young growth. This lack of reproduction is caused by fire, grazing and settlement. Due to only a few introductions of the disease, prompt application of control measures and unfavorable field conditions, the rust as yet is not a serious factor in the Lake States. Only a comparatively small acreage has needed protection.

In the Northeastern States the blister rust is generally distributed and can be found in practically every woodlot, the amount of the disease varying from a few scattered infections to 100% of the trees diseased. The rust is especially severe in New York, New Hampshire, Maine, and Vermont where natural conditions are exceptionally favorable for the spread of the disease.

In New England and New York, where the blister rust is most serious, there are 8,176,000 acres of white pine growth. To date 2,668,725 acres have been cleared of Ribes. Based on one third area allowed for protection strips, a total of 1,761,358 acres of pine have been protected. There remains 6,229,644 acres still in need of protection or a total of 9,449,466 acres that must be covered or a yearly acreage during the next six years of 1,574,911 acres exclusive of any re-eradication work that may be necessary. This is an increase of 1.76 times the area worked in 1923. Plans are now developed by of application of which it is expected to accomplish these results.

Federal Policy As Regards White Pine
and Blister Rust Control.

The National policy relating to blister rust control must be based on determination of the value of white pine in forest management under the increased cost and difficulties of producing it under Ribes-free conditions. Demand and prices determine how much of any crop is produced. The acreage of land adapted to the growth of white pine is very large and the demand for white pine lumber is steady and practically unlimited. Stumpage prices of white pine have now reached the point where it is highly profitable to use low priced land for growing white pine. The average increase in stumpage values in New England during the past ten years has been about 50¢ per year per thousand feet. A well stocked pine lot in New England today pays from 4 to 10 percent compound interest on the investment over periods of 35 to 70 years. Other species give equal or greater returns than white pine in restricted areas, but over a large part of our present non-productive land from Minnesota to Maine, white pine is the best species for reforestation purposes. Few other American trees have wood of the value and good qualities of white pine, and no other in at least a part of its range. Likewise, for much of its range, no tree is of equal value, is managed so easily, grows so rapidly, or can be cut with profit at such an early age. It is the best tree for the average farm woodlot in the Northeastern States.

The present timber shortage will be relieved only through an aroused public interest in forest regrowth, and white pine is the tree best adapted to stimulate such interest. The policy of the Federal Government is to extend knowledge of protective measures and methods of management of white pine and other forest crops. White pine will continue to be recommended as the species to be favored wherever it is the best tree for the purpose, due regard being given to Ribes conditions.

Methods of controlling the blister rust in the Eastern United States are now so well worked out, and the cost of this protection is so small in comparison with the financial returns, that white pine can successfully compete with other species adapted to the same site. The National policy is to encourage the eradication of Ribes, and other necessary protective measures to increase the regrowth of white pine throughout the Eastern pine regions. This statement applies also to the planting of white pine, emphasis being laid on the importance of eradicating Ribes before planting and care in selecting planting sites comparatively free from Ribes.

White Pine in the Northwest
and its Relation to the

The national policy relating to white pine control must be based on a recognition of the value of white pine in forest management under the present and prospective conditions of production. It is under these conditions, demand, and price that the value of any crop is produced. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low.

The present situation of white pine in the Northwest is a serious one. The demand for white pine is steady and practically unlimited, and the price of white pine is very low. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low.

Methods of controlling the white pine in the Northwest are not as well known as they should be, and the cost of this protection is so high in comparison with the financial value of the white pine that it is not generally considered. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low. The average value of white pine in the Northwest is very low, and the demand for white pine is steady and practically unlimited. The average price of white pine now ranges from 10 to 15 cents per cord, and it is highly probable that the low price of white pine is due to the fact that the average value of white pine in the Northwest is very low.

Community cooperation in Ribes eradication and the growing of pine in pure stands and large blocks is encouraged as a means for the most effective protection from blister rust at least cost.

It remains to be determined whether blister rust control will be effective and economically feasible in the Western white pine and sugar pine regions. These species now have a higher stumpage value than any other species in the West, and are as important to the development of forestry in the regions in which they grow as the Eastern white pine is in its range. Determined effort will be made to develop control methods adapted to Western forest conditions.

The function of the Federal Government in blister rust control work is to assist the states by acting as a clearing house for facts relating to pine growth and protection. In cooperation with the states, definite standardized practices have been developed in fire protection and blister rust control and federal financial aid given in such work. Federal experimental work is being carried on to determine the best ways of managing, protecting, renewing and marketing the white pine crop, and the knowledge gained given to the states and pine owners. The Federal forest experiment stations established in New England and the Lake States will be of great importance in this work. The result of investigation on the life history of the blister rust fungus, and experiments to further perfect methods of control are made available as rapidly as possible. In order that proper planting sites may be selected and white pine maintained and extended as a crop, land classification and a pine-Ribes survey should be made in cooperation with the States.

Three agencies in the United States Department of Agriculture are cooperating in the extension of blister rust control. These are the Forest Service, the States Relations Service and the Bureau of Plant Industry. The cooperating State and Federal forces have the opportunity to be of public service in securing better managed forests and increased timber growth. It is not the policy for blister rust workers to go outside their field except as the cooperating agencies agree it is desirable. These agencies should prepare a questionnaire giving the blister rust control agents information on the management of white pine and allied subjects on which the public expects them to be reliably informed. The State and Federal agencies concerned should go further.

The agencies cooperating in blister rust control want to build up forest production, including the production of white pine where that is the best crop. Preaching blister rust control is a means to that end. The approach must be fundamentally through selling the idea of white pine as a crop, with continued, systematic Ribes eradication as a part of the

Domestic cooperation in forest production and the growing of pine in large stands and large blocks is encouraged as a means for the most effective protection from blight that is practicable.

It remains to be determined whether blight control will be effective and economically feasible in the western white pine and sugar pine regions. These species now have a higher average value than any other species in the West, and are as important to the development of forestry in the regions in which they grow as the Eastern white pine is in its range. Determined effort will be made to develop control methods adapted to western forest conditions.

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The agencies cooperating in blight control want to build up forest production, including the production of white pine which is the best crop. Presumably blight control is a means to that end. The approach must be fundamentally through selling the idea of white pine as a crop, with continued, systematic close attention as a part of the

job of growing the crop.

The Federal blister rust control program in the Eastern and Lake States must be finished within the eight year period before 1931. In that time Ribes eradication must be accomplished where necessary and beyond that, a regard for the white pine crop that will insure recurrent Ribes eradication as needed.

The Organization

Cooperation

Cooperative blister rust control work combines educational, service and regulatory activities which are effectively coordinated into one working unit. The work is conducted under a formal agreement between the State Forest Service, the State Extension Service and the United States Department of Agriculture (Bureau of Plant Industry and Office of Cooperative Extension work).

The United States Department of Agriculture through its Bureau of Plant Industry is responsible for:

1. The proper expenditure of federal blister rust control funds and for the accomplishment of the desired results from these expenditures.
2. Providing county or district blister rust control agents to give pine owners and others the necessary advice, leadership and supervision needed to secure immediate and effective local eradication of Ribes in pine growing regions.
3. The proficiency of the blister rust control agents in all subject matter and technical information essential to the conduct of their work.
4. Giving such assistance as is practicable in the future improvement of control practices through experimentation and demonstration.
5. To cooperate in planning, organizing, coordinating and developing the control work in the various cooperating states in order to make it most effective through the application of suitable methods.
6. Completion of the blister rust control program in the Northeastern and Lake States within the eight year period which ends in 1931. In that time Ribes eradication must be effectively accomplished where necessary and beyond that a regard for the white pine crop that will insure recurrent Ribes eradication as needed.

The State Forest Service is responsible for the administrative direction of the cooperative blister rust control work within the State, for the enforcement of State blister rust laws and for furnishing trained personnel to supervise cooperative Ribes eradication work so as to guarantee effective removal of the bushes. Through the State Forest Service, land owners individually and by town appropriation provide labor for the eradication of Ribes on their properties.

The State Extension Service is responsible for providing a cooperative county working program of approved extension methods and procedure for carrying out where practicable the educational features of the control work in cooperation with the county extension organization. As far as practicable it makes available the facilities of its organization for promoting blister rust educational work and gives expert advice and assistance in the use of extension methods in so far as they are applicable to the cooperative control work. All blister rust educational activities are conducted in harmony with the organized extension service of the State and coordinated with those of the U. S. Department of Agriculture through its Office of Cooperative Extension Work.

This arrangement has resulted each year in bringing forth an increased volume of control work within the State and with it a constantly growing desire among pine owners to protect the white pine crops on their lands.

The State Police Service is responsible for the maintenance of law and order in the State. It is a branch of the Executive Department and is under the control of the Governor. The State Police Service is composed of several divisions, including the Bureau of Investigation, the Bureau of Criminal Investigation, the Bureau of Traffic, and the Bureau of Motor Vehicle Inspection. The State Police Service is also responsible for the training and supervision of the State Police. The State Police Service is a very important part of the State Government and is responsible for the safety and security of the State.

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This document is a copy of the original document and is not to be used for any other purpose. It is a confidential document and its contents are not to be disclosed to the public. It is a document of the State Government and is the property of the State. It is to be kept in a safe place and is not to be loaned or given to anyone else. It is a document of the State Government and is the property of the State.

Federal Blister Rust Control Organization in the
Northeastern and Lake States.

The Federal Supervisor in charge of the Eastern Branch Office of Blister Rust Control is the field representative of the Office of Blister Rust Control and is directly responsible to the office head for carrying out the program of field work as approved by the Bureau of Plant Industry and the cooperating Northeastern and Lake States. He is responsible for establishing and maintaining cordial and effective relations with the state cooperators, state forestry departments and extension forces, for developing a capable and reliable force of field men, and for cooperating in the supervision of field activities in such a way as to obtain progressive results in accomplishing the general application of control measures within the eight year program. The supervisor will have direct supervision of the work done by the blister rust specialists, and any other employees working in or from the eastern field office and the federal experimental work at North Hudson, N. Y. and Eau Galle, Wisc., but will have no direct authority over any of the state leaders or blister rust control agents. He will aid in planning, organizing, coordinating, developing and supervising the cooperative blister rust control activities in the various states to bring this work to the highest degree of efficiency and to insure the completion of the project by 1931.

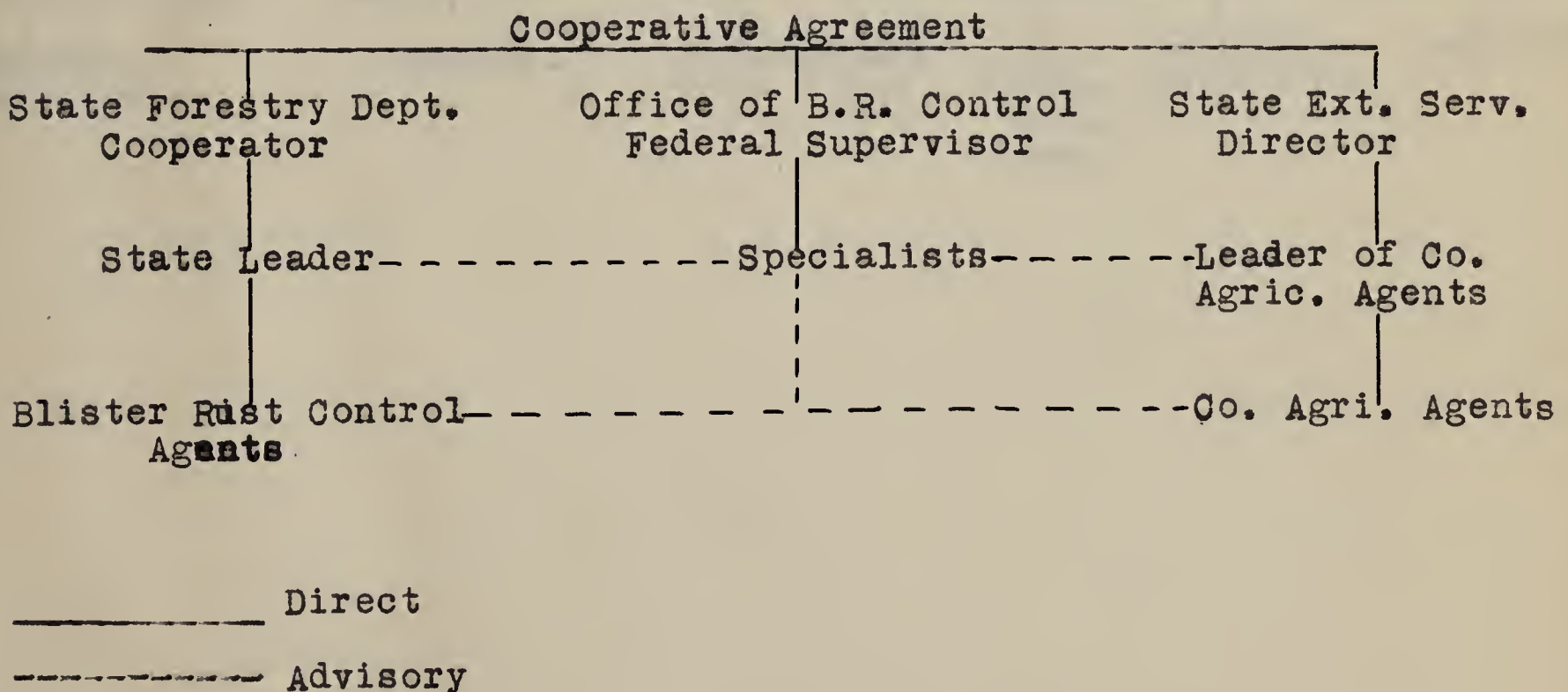
The blister rust control specialists are directly responsible to the federal supervisor in charge of the Eastern Branch Office of Blister Rust Control for effectively carrying out, in cooperation with the state leaders and blister rust control agents, the approved blister rust control program for the territory to which assigned within the specified time limit. The specialists are also responsible for extension teaching in blister rust control, keeping the agents informed and up-to-date in subject matter, the development and utilization of all available agencies and for producing effective relationship between all cooperating parties. The specialists will cooperate with the state leaders and others in studying, planning, organizing, coordinating and developing the cooperative control work, to make it most effective through the application of suitable methods. Sufficient contact will be maintained with the field work and personnel to insure effective and desired results. The specialists will have no authority over state leaders or the blister rust control agents. Desired action and results will be obtained by making suggestions and recommendations to the state leaders and federal supervisor and by experiments and demonstrations made cooperatively with members of the personnel after careful planning. If approved by the state leaders, the specialists may make suggestions or recommendations direct to the blister rust control agents.

[illegible][illegible]

The Clerk at the Eastern Branch Office of Blister Rust Control will be directly responsible to the federal supervisor in charge for assisting in the general office work. He will summarize the weekly and monthly reports of the federal and cooperating blister rust control forces on prescribed forms, keep all material properly filed and recorded and assist in the routine work of the office.

Special Federal Employees such as Hodgkins, and men engaged on experimental work at North Hudson and Eau Galle will be directly responsible to the federal supervisor for effectively carrying out the duties of their positions. All such men will be given definite instructions for each project, and their authority, responsibilities and duties clearly defined. The federal supervisor may instruct the blister rust specialists to supervise or assist any such special employees.

Diagram to show the relation of federal supervisor and blister rust specialists to the cooperative control organization.

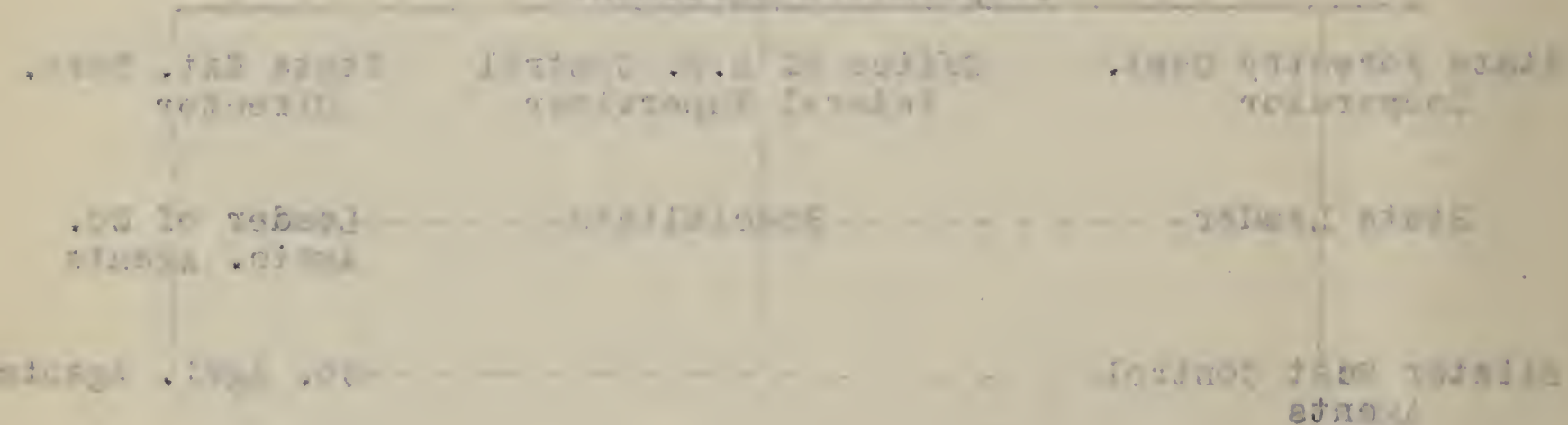


The Office of the Inspector General, Bureau of Prisons, is advised that the following information was received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter. It is requested that you advise this Bureau of any further information received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter. The Office of the Inspector General, Bureau of Prisons, is advised that the following information was received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter. It is requested that you advise this Bureau of any further information received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter.

Enclosed herewith are two copies of a letterhead memorandum from the Federal Bureau of Investigation, Bureau of Prisons, dated and captioned as above. The letterhead memorandum is being furnished to you for your information and for your use in the performance of your duties. It is requested that you advise this Bureau of any further information received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter. The Office of the Inspector General, Bureau of Prisons, is advised that the following information was received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter. It is requested that you advise this Bureau of any further information received from the Federal Bureau of Investigation, Bureau of Prisons, on the subject of the above captioned matter.

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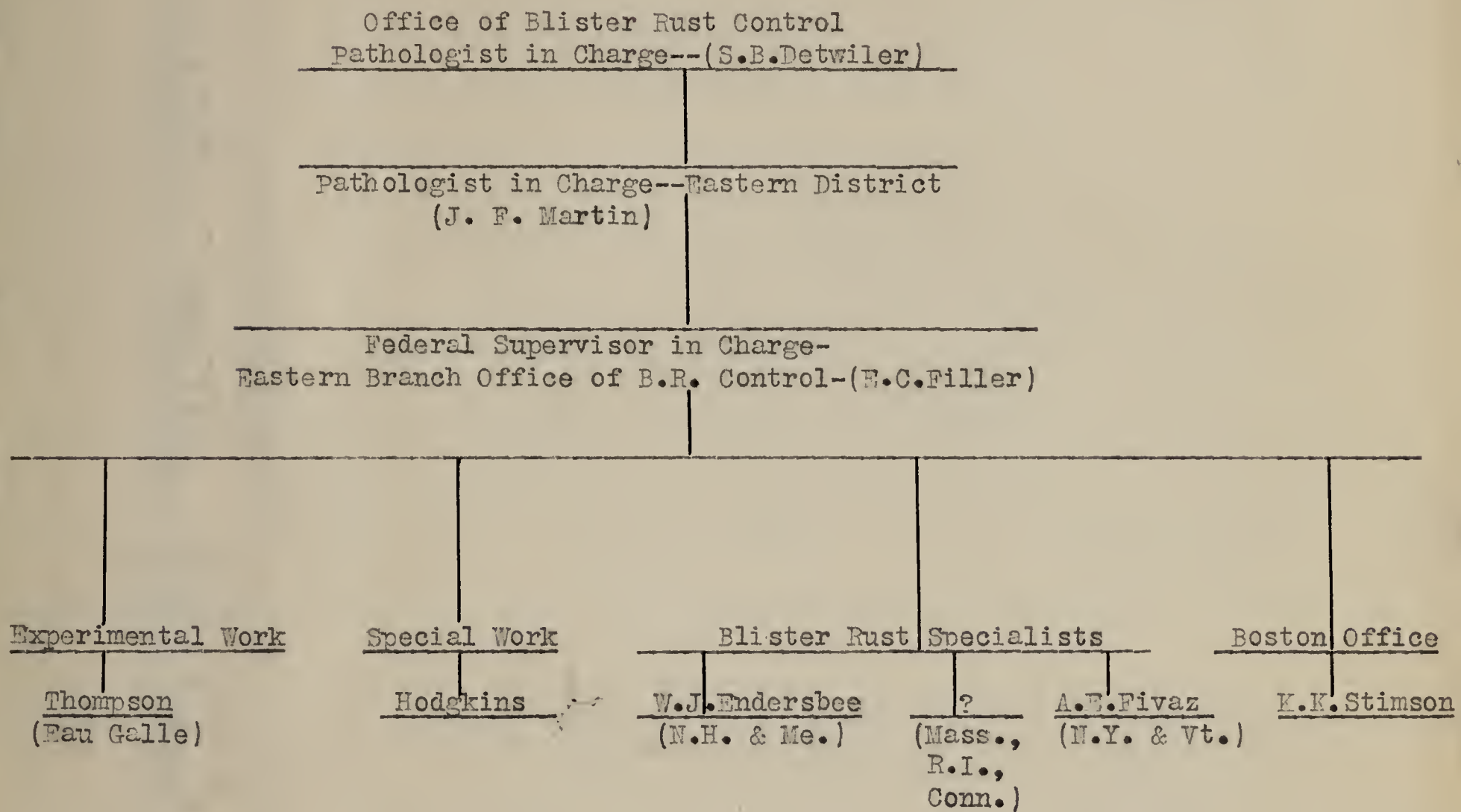
Cooperative Agreement



Very truly yours,

 Director, Federal Bureau of Investigation, Bureau of Prisons

Diagram of Federal Blister Rust Control Organization
1924--Northeastern and Lake States.



ORGANIZATION OF COOPERATIVE BLISTER RUST CONTROL FORCES IN NORTHEASTERN AND LAKE STATES-1924.

UNITED STATES DEPARTMENT OF AGRICULTURE

OFFICE OF BLISTER RUST CONTROL

Pathologist in Charge - S.B. Detwiler

Pathologist in Charge
Eastern District - J.E. Martin

Pathologist-Assisting Messrs-Detwiler
and Martin - G.B. Posey

Head Clerk - H.P. Avery

Stenographers-Clerks
and Messengers

Pathologist in Charge
Educational Material - R.G. Pierce

Assistant in Exhibit Work.

Pathologist in Charge-Eastern
Branch Office B.R. Control - E.C. Filler

General Field Assistant
L.W. Hodgkins
(May-Aug.) - White Mt. Nat. Forest
(Jan., Feb., Nov., Dec.) Damage Studies - Mass.

Demonstration
Control Work
Eay Galle
W.C. Thompson

Boston Office
K.K. Stimson

Pathologist in-Charge
Experimental Work - E.R. Ford

Blister Rust Specialist-Me. and N.H. District - W.J. Endersbee

Blister Rust Specialist-Vt. & N.Y. District - A.E. Finaz

Blister Rust Specialist- Mass., R.I., Conn.

Cooperation With Eastern States

Maine

New Hampshire

Vermont

New York

Massachusetts

Connecticut

R. I.

Wisconsin

Minnesota

Extension Director
L.S. Merrill
Leader - Co. Agri. Agents
Forestry Ext. Specialist
M.E. Watson

State Cooperator
Niel Violante
State Leader
W.O. Frost

State Cooperator
J.H. Foster
State Leader
L.E. Newman
Asst. Leader
J.M. Gorliss

Extension Director
J.C. Kendall
Leader
Co. Agric. Agents
Robinson

Blister Rust Control Agents
S.D. Conner - Cumb. Co.
D.S. Curtis - Oxford
G.H. Kimball - Andros.
E.E. Tarbox - York
13 Temp. Agents as Assts.
(May-Sept.) 3-4 For Each Agent

State Foremen
For Each Agent

State Crew
For Erad.
Lands of
Delinquent
Owners

Blister Rust Control Agents
F.J. Baker - Cheshire Co.
B.H. Boomer - Carroll
K.E. Barraclough - Rockingham
W.J. Cullen - Strassford & Belknap
T.L. Kane - No. Grafton
D.B. Keane - Sullivan
T.J. King - Merrimack Co.
G.F. Richardson - Grafton
H.W. Robb - Hillsboro

State Foremen, Scouts
and Crews For Each Agent

State Inspectors

Extension Director
Thos. Bradlee
Leader
Co. Agric. Agents -

State Cooperator
J.M. Ross
State Leader
J.M. Riley
Asst. Leader

Blister Rust Control Agents
W.E. Bradder - Upper Conn. R. Valley Dist.
S.V. Holden - Central Conn. R. Valley Dist.
F.H. Rose - Lower Conn. R. Valley Dist.

State Foremen
For Each Agent

State Cooperator
C.R. Pettis
State Forest Pathologist in Charge B.R.C. Work
H.H. York

Extension Director
Leader - Co. Agric. Agents

Agent in Charge-Eradication Work
A.F. Amadon

Blister Rust Control Agents
N.H. Harpp - So. Hudson Valley (New Man)
Williams - Schohaire
Stevens - Lowville
Knowles - Gloversville
Kennedy - Washington
Miller - Saratoga
Fogg - Warren
Woodward - "
Franklin - Essex
Nichols - " (New Man) - Warren Ex.

State Inspectors
Sullivan
McAvergh
State Land Work

Foremen and Scouts
For Each Agent

State Foremen
Scouts & Crews

Extension Director
J.D. Willard
Leader
Co. Agric. Agents

State Cooperator
R.H. Allen
State Leader
C.C. Perry

Blister Rust Control Agents
E.M. Brockway - Plymouth & Norgolk
G.S. Doore - Franklin & Hampshire
E.J. McNeerney - Worcester
R.W. Mernick - Upper Worcester
W.T. Roop - Essex & Middlesex
R.E. Wheeler - Hampden & Hampshire

State Inspectors

State Scouts or Foremen
and Crews For Each Agent

Extension Director
B.W. Ellis
Leader Co. Agric. Agents

State Cooperator & Leader
W.O. Filley

State Assistant to State Leader
H.W. Hicock

Blister Rust Control Agents
A.D. McDonnell - Litchfield Co.
R.M. Hick - No. East- State
So. State

Foremen Scouts
Crews
In Litchfield Co. only

State Cooperator & Ext. Director
A.E. Stone
Assistant Entomologist
R.A. Sheals

Blister Rust Control Agent
O.C. Anderson

State Scouts

Extension Director
H.L. Russell

State Entomologist
J.B. Fracker

State Leader & B.R. Control Agent -
H.J. Newman

State Forester

Extension Director
F.W. Pack

State Nursery Insp.
A.G. Ruggles

Forestry Extension Spec.
Tillotson

Direct

Advisory

Note:

In all districts the blister rust control agents work in harmony with the county agricultural agents

Plan of Federal Work

Location

The principal commercial and potential white pine areas of the Northeastern and Lake States. These regions are divided into four districts; namely, I--Maine and N.H., II--Mass., R.I., and Conn., III--Vermont and New York, IV--Mich., Wisc., and Minn.

Federal Supervision and Assistance

A. Need

To guarantee the fulfillment of the responsibilities of the Office of Blister Rust Control, as outlined above.

Other needs which will be met:

1. To assist the state leaders in the technical part of the program. (The state leaders are functioning in two capacities; namely, as supervisors and as specialists. The executive position which the leader fills, demands too much of his time to permit him to give the necessary time and thought to the specialist's work).
2. To function as a mobile force in studying, developing, coordinating and suggesting the application of ideas and methods for improving the work.
3. To act as an advisor to state agencies for speeding up the control program in order to guarantee its completion within the allotted time. To act as liason officers between the cooperating parties.
4. To disseminate federal and interstate viewpoints.
5. To make sure effective Ribes eradication results are obtained.
6. To supervise or assist any strictly federal blister rust control projects in the Northeastern or Lake States.

1911

The following members of the Association were present at the meeting held on the 10th of January 1911: Messrs. J. H. ... and ...

REPORT OF THE ASSOCIATION

1. ...

The Association has been very successful in its work during the year. It has held several meetings and has been very active in its work.

It has also been very successful in its work during the year.

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6. To assist the members in their work. The Association has been very successful in its work during the year. It has held several meetings and has been very active in its work.

B. Procedure

1. To make and maintain effective contacts.

Effective cooperative contacts are essential to develop a better appreciation of the control work and methods and to increase cooperation and coordination between interested parties. The time of the federal supervisor and blister rust specialists will be apportioned so that definite contacts will be made with the Washington Office, Boston Office, state cooperators, extension leaders, state foresters, agricultural agents, forestry extension specialists, Forest Service, forest schools, forestry societies, state leaders, blister rust control agents and others. The federal supervisor will confine most of his contacts to the federal and state cooperators and leaders, while the blister rust specialists will spend as much time as possible with the blister rust control agents and county agricultural agents. Frequently two or more contacts can be made during one visit. As for example, the agricultural agent can be seen during the visit to the blister rust control agent.

2. To assist the leaders and agents in planning, developing, and coordinating the control work in the state and district organizations.

To increase the amount of effective work each federal man, state leader and blister rust control agent will prepare a definite yearly plan of work and schedule. Complete sample plans will be submitted by the Washington Office to the state leaders and the federal field personnel will assist the leaders and blister rust control agents in preparing their plans. The federal men will be furnished with copies of the state and district plans and will aid as far as possible in putting them into practice, and in seeing that the desired results are obtained.

3. To help properly train, equip, assist, maintain, and inspire the personnel.

The federal supervisor and the blister rust specialists will make a special study to determine the needs and weaknesses of the personnel in each district, by analyzing the monthly and yearly reports and by the specialists making frequent personal visits to each agent's district. The federal men will assist in training the personnel at state seminars and at schools for agents and eradication forces. The specialists will take new agents with them on

II. Proposed

1. To create and maintain a Federal Bureau of Investigation

Effective cooperation among the various departments is essential to develop a better organization of the Federal Bureau of Investigation and to increase its efficiency and effectiveness. The first of the proposed changes is to create a Federal Bureau of Investigation which will be organized as follows: The Bureau will be organized into five divisions: General Investigation, Criminal Investigation, Administrative, Technical, and Training. The General Investigation division will be responsible for the investigation of all crimes against the United States. The Criminal Investigation division will be responsible for the investigation of all crimes against individuals. The Administrative division will be responsible for the management of the Bureau's affairs. The Technical division will be responsible for the development and maintenance of the Bureau's technical equipment. The Training division will be responsible for the training of the Bureau's personnel. The Bureau will be headed by a Director who will be appointed by the President. The Bureau will have a budget of \$10,000,000 per annum. The Bureau will be located in Washington, D.C. The Bureau will be responsible for the investigation of all crimes against the United States. The Bureau will be responsible for the investigation of all crimes against individuals. The Bureau will be responsible for the management of the Bureau's affairs. The Bureau will be responsible for the development and maintenance of the Bureau's technical equipment. The Bureau will be responsible for the training of the Bureau's personnel.

2. To create and maintain a Federal Bureau of Investigation
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field trips to teach them the various phases of the control work by actual observation and contact. All agents will be thoroughly trained in conducting a well balanced blister rust control program and in doing sufficient checking to obtain desired results. An inventory will be made to determine what material each agent has in his possession, and every effort will be made to supply any lacking equipment. The federal men will also furnish the agents and leaders with definite facts and figures, concerning the control work, which can be used in informing the public of conditions. Each agent will be fully equipped with maps showing the pine areas and portions cleared of Ribes, salesbooks, Riker mounts, panels, canned specimens, slides, photographs, etc. In making contacts with the field personnel every effort will be made to assist in all possible ways and to inspire the men with enthusiasm, confidence, and new ideas for their jobs.

4. Study problems, investigate, develop, and suggest ideas and methods for improving the work.

The federal men will make careful studies of conditions in the field in each district in order to develop ways for improving every phase of the control work. In addition, all records, field data, etc. will be carefully summarized and analyzed and plans and recommendations made for improving the weak points. In carrying out this phase of the work the extension forces will be utilized as far as practicable.

5. To aid in coordinating and developing the the work in each district to the highest efficiency so as to accomplish the general application of control measures within The eight year program.

Completion of the blister rust program within the eight year period is the goal of all our efforts. To accomplish this by 1931 it is necessary to clear 1,574,911 acres of Ribes each year, not counting any re-eradication work. Every effort will be made to speed up the control work by developing more efficient methods and personnel, decreasing waste, and increasing amount of individual and town cooperation. To secure more cooperation, additional and more effective blister rust publicity and intensive work is needed. Special studies will be made by the federal men to determine the best ways to increase the results from such work. In some states a more extensive and adequate scouting system is needed. Better training of the eradication forces and closer supervision of their work by the agents will produce additional and more effective results.

6. To develop the closest possible cooperation between the agencies engaged in control work, in order to utilize the facilities of these cooperators to the fullest extent.

Through personal contact with cooperating agencies the federal men will endeavor to develop full utilization of all facilities offered by the cooperators. Some of the agents do not have cooperation with the Farm Bureau offices, others which have it do not use it to greatest advantage. The state leaders and agents will be encouraged in organizing Farm Bureau blister rust control committees, for the purpose of securing cooperation and disseminating information regarding blister rust to all members of the Farm Bureau. The state forestry departments will be kept acquainted with the blister rust situation and urged to give all possible support to the control work. The field personnel will be made to fully appreciate and utilize the federal offices. Also, a special effort will be made to bring all these agencies into closer harmony and use by ascertaining and suggesting how they can best cooperate.

7. To make local field studies and to summarize data in suitable form for use of personnel.

Local demonstration plots and statistics on pine damage are extremely valuable in getting local cooperation. Several plots should be laid out in each district. To start this work, each agent will locate at least one area which is suitable for a pine damage study. The agent and specialist together will mark out the plots, make the study and prepare the data for the agents use. In this way, each agent will get experience in the different phases of this work, and with the instruction given him by the specialist should be able to lay out additional plots by himself. Such plot data will be made available for use of all agents.

8.. To prepare publicity material for the agents use and to assist in this phase of the work.

The federal men will ascertain by personal contact with the state leaders and agents what publicity material each agent has, what and how it is being used, and will make a study to determine the effectiveness of this data and its best use. When the necessary information is at hand, publicity material will be prepared to meet the needs of the agents and

assistance given them in putting it in operation. The purpose is to develop new and attractive material that carries a punch which gets and holds the public attention. In many cases it will be necessary to present entirely new ideas, while in others new dresses will be sufficient on material now in use.

9. To act as state leader or in special cases as blister rust control agent when unexpected changes in personnel creates an emergency.

The maintaining of a complete and efficient organization at all times is essential. If a state leader should unexpectedly leave the work, the Boston Office will offer the assistance of the specialist during the emergency. In case of an agent, the specialist, after consulting the Boston Office, will offer his services to the state leader.

10. To make sure the Ribes eradication work is efficient in controlling the disease.

The federal men, especially the blister rust specialists, will visit crews and scouts and check eradication areas to determine the Ribes factor remaining after control work. Suggestions and recommendations for improving this work will be made direct to the blister rust control agents if desired by the state leaders.

11. To supervise or assist any federal blister rust control projects in the Northeastern and Lake States.

There are three strictly federal blister rust control projects in this district; control work on the White Mountain National Forest, selective Ribes eradication experiments at North Hudson, N. Y., and control experiments by Ribes eradication at Eau Galle, Wisc. and Cass Lake, Minn. Definite plans have been developed for carrying on the work in each area, and will be followed during 1924 and future years.

In order to help get the control work started on the national forest, a federal man (Hodgkins) will be assigned to assist the Forest Service personnel during the period May-September, 1924. As long as the control work is in progress on this forest, the federal blister rust supervisor and the blister rust specialist in district I will aid this work in all possible ways. Frequent contacts will be made with the Forest Service personnel and inspections of the

field work. Suggestions and recommendations for conducting and improving methods, etc. will be made direct to the Forest Service field assistant in charge of blister rust control work on the area and to the supervisor in charge of this National Forest.

Future field work at Eau Galle and North Hudson will consist of rechecking definite plots to determine pine infection and Ribes conditions. During 1924, no field work is planned for North Hudson or Cass Lake but at Eau Galle several plots will be rechecked (about a months work for 2 men). Before any additional field work is done on these projects, except Eau Galle, all data so far obtained will be summarized and analyzed. The North Hudson figures will be worked up by Ford at Washington and the Eau Galle data by Thompson at St. Croix Falls, Wisc.

12. Records.

Adequate records are essential to develop and coordinate the control work and to insure the completion of the control program within the eight year period. Field records are the chief means by which the Washington and Boston Offices can keep in touch with the field work. An analysis of such records shows the weaknesses and points to the remedies. To successfully handle their work, the federal men must appreciate, analyze and utilize the records to the fullest extent.

The blister rust specialists will submit weekly reports in duplicate to the Boston Office, concerning their activities, observations, recommendations and plans, and a progress statement of the work in their districts. In addition copies of all the specialist's official correspondence will be sent with the weekly reports. The specialists will also grade the work of the agents as given on the monthly B.R.E.2a reports prepared by the Boston Office and report results supported by explanations, plans and recommendations to the Boston Office. By January 15th. of each year the specialists will submit an annual report in prescribed form together with a plan of work and calendar of activities for the following year. Any special federal men, as Hodgkins, will submit similar weekly progress reports and a project or yearly report to the federal supervisor as he may direct.

The federal supervisor will have prepared at the Boston Office monthly summary reports B.R.E.2a for use of the state leaders and federal specialists and B.R.E.2b reports for the Washington Office. The supervisor will personally analyze the B.R.E.2 records and write a short report based on

this analysis to accompany the B.R.E.2b report to Washington. Every three months the supervisor will submit a quarterly progress report, briefly summarizing the blister rust control accomplishments in the Northeastern and Lake States. By March 15th. of each year, the supervisor will submit an annual report covering in detail all cooperative and federal work in these states during the year, and a plan of work together with schedules for all federal blister rust control employees in his district. Copies of all official correspondence concerning work in the district will be exchanged between the Washington and Boston Offices. Also the federal supervisor will furnish the specialists with copies of official correspondence concerning the work in their districts.

C. Current Working Plans.

Each year current working plans will be prepared outlining in detail the work to be done. This includes a statement of activities to be undertaken, working itineraries for the federal supervisor, blister rust specialists and any other strictly federal men working under the direction of the federal supervisor, and a budget. These plans will be developed by the federal supervisor in cooperation with his assistants and approved by the Washington Office. Each year the plans will be revised to meet the new budget and field problems of the federal and cooperative control work.

Federal White Pine Blister Rust Control Work in Northeastern and Lake States Supervised by Eastern Branch Office of Blister Rust Control.

Current Working Plan for 1924.

I. Location of Work.

Northeastern and Lake States (New England, New York, Wisconsin, Michigan and Minnesota) the principal commercial and potential white pine region in these states. This region is divided into four districts as follows:

District I- Maine and New Hampshire

" II- Massachusetts, Rhode Island and Connecticut

" III- Vermont and New York

" IV- Michigan, Wisconsin and Minnesota.

II. Assignments.

The following assignments are made for carrying on the work in this region and in each district:

(Northeastern	E.C.Filler - Federal Supervisor in charge
(& Lake States	
"	K.K.Stimson- Clerk at Boston Office
District I	W.J.Endersbee-Blister Rust Control Specialist
" II	---
" III	A.E.Fivaz
" IV	E.C.Filler - Federal Supervisor in charge
Special	William Thompson - Temporary Field Assistant in charge experimental work at Eau Galle, Wisconsin.
	L. W. Hodgkins - Agent

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Activities to be carried out in Northeastern and Lake States by Federal Supervisor during 1924.

Table #90

What		Where	When	How	Results expected
Office Work	Annual Report	Boston	Part time during Jan. 15 - Feb. 5 Feb. 23 - March 31	Summarizing and analyzing all records of Boston Office and state annual reports.	Complete report of all cooperative and Federal Blister Rust work in the Northeastern and Lake States.
	Plan of Work	"	Part time during April 1 - 30	Analysis of entire work, conferences with state and Federal leaders.	Plan of work for 1924 budget and schedule of work for federal personnel.
	Annual Conference	"	Feb. 15 - 21 Part time	By working out adequate plans in advance in full cooperation with state and Federal leaders.	Successful conference of state and federal leaders with definite and adequate results obtained from meetings.
	Office Management	"	Average two days per week	By personally spending sufficient time in Office, assistance of a permanent clerk and occasionally temporary assistance when the need arises.	Proper attention to policies, plans, budgets, records, correspondence, supplies, payrolls, keeping up schedules of work, expense accounts, letters of authorization, quarterly progress report, approval of appointment, salary increases, inventory of all Government property, Monthly Reports (BRS 2 a & b), analysis of these reports, all property charges for federal equipment, reports, summaries, special papers, filing, drafting maps, charts and graphs, news items, publicity material, procuring bulletins, etc.
	Supervision of federal B.R.C. Personnel:	Boston and in Field	Average at least one contact per man per month	Adequate personal visits with men in field, correspondence and conferences at Boston Office - study problems, develop plans and apply instructions and suggestions	Production of effective work by federal men in carrying out definite plans. Speeding up of control work, increased cooperation, 1½ million acres eradicated of Ribes in 1924. Definite and desired results on experimental work.
	(B.R. Specialists Hodgkins Thompson Stimson)				
	Educational Work	Boston and in Field	3 days per month	Talks, exhibits, demonstrations, press items, posters, papers, etc. - Visits to State Forestry Association, Forestry Schools, Organizations, etc.	Increased public and professional interest in cooperative Blister Rust Control program.
	Cooperative Contacts				
(a)	B.P.I.	Washington Boston	Feb.-May Aug.-Nov. ?	Personal visits, correspondence. Discuss work, developments, progress, news - Bring in field atmosphere and viewpoints, interchange ideas and suggestions - Work on plans.	Better cooperation, planning, coordination, understanding and development of work.
	Forest Service	Washington White Mt. Nat. For. Amherst	May - Nov. May-July-Aug. June-Sept.	Personal visits - Correspondence - Present definite facts and news. Discuss problems, get and give suggestions for improving cooperative work.	Effective cooperation, planning, coordination and understanding of cooperative work.
	States Relations Service	Washington, D.C.	May-Nov.	"	"
	State Director of Extension and state leader of Co. Agri. Agents.	All cooperating states	Each state Director of Extension and State Leader of Co. Agri. Agents at least twice a year.	"	"
(c)	State Cooperators	All Cooperating states	Each Cooperator at least three times a year	"	"
(d)	State Leaders and Assistant Leaders	" and at Boston	Each leader at least every 2½ months	Personal visits, Correspondence. Give state leaders interstate & Federal news, new methods, ideas, etc. Summary of observations and recommendations. Assist in making plans, records and coordinating work. Discuss personnel, plans, efficiencies, methods, agents & specialists work. Correct misunderstandings.	Production of effective results in cooperative control work. Speed up control progress, increase cooperation - 1½ million acres eradicated of Ribes in 1924. Definite and desired results.
(e)	B. R. Agents & County Agri. Agents	All cooperating states	When visiting cooperating states	By attending agent conferences - visiting as many agents as possible in field with state leaders & specialists. Visiting agents enroute to see leaders, cooperators, and others.	Get first hand information on field conditions and to produce effective cooperation with extension forces. Improvement of methods, greater cooperating results.
	Conferences	"	When held	By personally attending annual conference, state leaders meetings, agents conferences and others such as foresters, lumbermen, etc.	To develop contacts, get new ideas, work out plans, develop work, discuss problems. Obtain effective cooperative coordination and understanding of control work.

Activities to be Carried Out in Districts by Blister Rust Specialists

Table # 91

What	Where	When	How	Results Expected
Office Work	Headquarters	Average one day per week	By doing necessary work on records, reports, correspondence, plans for work in field, writing news items and preparing exhibits.	Records, reports, correspondence kept up to date and properly filed. Adequate plans for work, material for news letters and educational material. Agents rated from BRE 2 & forms. Bulletins, statistics, etc., gathered and effectively used.
	Boston Office	At least once every 3 months	Personal visits - Discuss work, progress, views. Bring in field view points, interchange ideas. Work on plans, make recommendations. Bring materials and equipment up to date.	Effective supervision, federal contact - reports and plans for accomplishing desired results.
	Washington Office	At least once a year	" " "	" " "
Study and Improvement of Blister Rust Control Agents' Work	In field	3 days per week	Personal visits to each agent in district. Study problems, investigate development and suggest ideas and methods of improvement, in the following features: General Publicity, Intensive Educational work, records, plans, maps, files, regulations, educational material, etc. Crews and eradication work. Cooperation with extension forces, utilization of all available forces, Studies for local facts and figures, Personnel in districts - Send State leader report on observations and recommendations so action will result. Help train new men.	Definite knowledge of field conditions in all phases of work. To produce effective results in cooperative control work. Speed up control progress, increase cooperation and acreage cleared of Ribes in 1924. To develop better appreciation of work and methods and increase efficiency, coordination and cooperation.
Checking of control work	Field	While visiting B.R.C. Agents Districts - May - Oct.	Determining Ribes factor remaining on areas worked and report observations to agents and leaders.	Effective Ribes Eradication Work Adequate protection to the pine stands.
Informing the public generally (with approval of state leader)	Field	$\frac{1}{2}$ day per week	Meetings, exhibits, posters, press items, publications, schools, - Gathering field and local data and preparing it for use. Talks at meetings, etc.	Increased public interest in cooperative control program.
Intensive Educational Work (with approval of state leader)	Field	$\frac{1}{2}$ day per week	Personal Interviews with officials and pine owners. Demonstrations to prominent people, foresters, lumbermen, etc. who live outside regular agents district. Visits to forestry associations, schools, etc.	Action by pine owners and towns in B.R.C. work. Increased professional interest in B. R. C. work.
Cooperative Contacts	In District	At least twice a month	Personal Visits - Correspondence - Give State Leaders summary of observations and recommendations - interstate and federal news, new methods, ideas, accomplishments. Assist in making plans, records and coordinating work. Discuss plans, agents work, efficiencies, methods, personnel, correct misunderstandings - give general assistance where needed.	Production of effective results in cooperative control work - Speed up control progress, increase cooperation and acreage eradication of Ribes in 1924. Definite and desired results.
(a) State Leader				
(b) State Cooperator		At least once every two months	Personal Visits - Reports - Discuss problems, present definite facts and news - Get and give suggestions for improving work.	Effective cooperation, planning, coordination and understanding of cooperative work.
(c) State Director of Extension State Leader of Co. Ag. Agents	At State Directors Headquarters	At least three times a year.	Personal visits - Present definite facts and figures - discuss problems - Get and give suggestions for improving B.R.C. work	Effective cooperation, planning, coordination and understanding of cooperative work.
(d) B. P. I.	Boston Washington	As given above under office work	As given above under office work	As given above under office work.
(e) County Agr. Agents	District	When visiting Blister Rust Control Agts.	Personal Visits - Present facts and figures - Discuss problems, get their viewpoints - get and give suggestions for improving work.	Effective cooperation, planning, coordination and understanding of cooperative control work.
Supervision or assistance in strictly B. R. C. projects in Districts	District	When needed	Personal visits and inspections - study problems, develop plans and apply - Instructions and suggestions.	Accomplishment of desired results in federal projects.
Conferences	District and Boston	When held	Attend annual conference, State leaders meetings, agents conferences in district and others as Foresters, Lumbermen's, etc.	To develop contacts, get new ideas, work out plans, discuss problems, effective cooperation, coordination and understanding on control work.

Activities to be carried on by L. W. Hodgkins - March 1 - Dec. 31, 1924.

Table #92

What	Where	When	How	Results Expected
Federal Quarantine Inspection	Kansas City	March 1-Apr. 30 Sept. 1- Oct. 30	Personal inspection of freight, express and parcel post shipments of nursery stock for violations of quarantine 26	Return of all violations to consignors. Complete records and reports of all work.
Control Work on White Mt. National Forest	White Mt. Nat'l Forest	May 1-Aug. 31	By personally helping to train scout crew and Field Asst. By Ribes scouting work in advance of crew. Pine and Ribes reconnaissance on entire forest	A completely trained personnel -Eliminating of Non-Ribes areas on a definite tract to be worked in 1924. Complete Pine & Ribes reconnaissance, map and records for entire forest from which future plans can be developed.
Infection Scouting and Damage Study Plots	Mass.	Nov. & Dec.	Scouting for pine infection in likely areas -Laying out $\frac{1}{4}$ acre plots, examining all pine and recording full data on all cankers.	Location of several areas which can be used as damage study plots. At least one plot study made in each Mass. Agents district.

Activities to be carried on by William Thompson -June 15-Sept. 15, 1924

What	Where	When	How	Results Expected
Field Work	Eau Galle Wis.	June 15 to July 5	Rechecking Ribes Eradication and ecological study plots as outlined in original experiment. One man to assist Thompson in this work	Complete recheck data for experimental plots as outlined in experiment to show efficiency of eradication Ribes regrowth and ecological facts
Office Work	St. Croix Wis.	July 7 to Sept. 15	Summarize and analyze the 1922-3 work on the Eau Galle demonstration area from material now in Washington. Summary & analysis of 1924 rechecking data.	Complete summary and analysis of all work to date on Eau Galle Control area - Progress Report

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CALENDAR AND PROGRESSIVE RECORD OF WORK FOR FEDERAL SUPERVISOR
White Pine Blister Rust Control

District--Northeastern and Lake States

Federal Supervisor--T.C. Miller, Year-1924.

PROJECTS		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
		Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done
Office work at Boston																	
General office work	plans,	9, 10, 12, 21, 21,															
	Correspondence, expense accts, payrolls, misc.																
	Letters of authorization																
	Property Inventory																
Records and Reports	Analysis of monthly B.R. 7.2a and b reports	13															
	Quarterly progress report	15															
	Annual report																
	Yearly plan of work, budget, schedules, etc.	1-9															
Special	Plans, papers, reports, summaries, graphs, etc.	7, 10, 31															
	Office conferences other than federal B.R. men	12 York 3 Anderson															
Material for Blister Rust News Letter																	
Preparation of educational material																	
CONTACTS Federal	Endersbee	1-2															
	In field	16															
Blister Rust Control Field Personnel	Rivaz	1-3															
	In field																
Hodgkins	At Boston																
	In field																
Thompson	At Boston																
	In field																
Washington Office Blister Rust Control	Detwiler	23-24															
	In field	8-10 Boston, 10															
Pierce	Martin, Percy	23-24															
	In field																
Forest Service	Washington, D. C.	26															
	White Mt. National Forest	27															
States Relation Service	Forest Experiment Station	12+19															
	Washington, D. C.	24 Colquhoun															
State	In field																
State Directors of Extension																	
County Agent Leaders																	
State Co-operators		22 Filly															
		12 Allen															
State B. R. Leaders		12 Perry															
Forestry Extension Specialists																	
State Forestry Associations		6 Reynolds 13 "															
State Forestry Schools																	
State Foresters (not co-operators)		12 Cook															
Special contacts		22-Tuckey New Haven															
Field Data and Investigations																	
Miscellaneous	Conferences																
	Special work	14 Motion Pittsford Dorchester															
Leave																	

NOTE:- Indicate additional contacts made during visits to federal and state leaders as follows:
one asterisk---Co. agricultural agent--(give names)
two asterisks--Blister rust control agents--(give names).

Differentiate between meeting and visit by three asterisks.

CALENDAR AND PROGRESSIVE RECORD OF WORK OF SPECIALIST
White Pine Blister Rust Control

District I--States of Maine and New Hampshire

Specialist--W.J. Andersbee, Year 1924.

PROJECTS	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done
Office work (largely at headq'ts.)																								
Weekly reports									5, 10, 19,	2, 9, 16			7, 14, 21,	4, 11, 18,	8, 15, 22	6, 13, 20,	3, 10, 15,	1, 15, 8						
Monthly reports and accounts									26, 31	23, 28			20	25	29	27	24							
Annual report and plans									10, 31	20			20	31	39	31	30							3-4 10-16
Material for B.R. News Letter									5	16			14	16	15	14	15							
Observation & recommen. reports																								
Preparation educational mat'l.									5-6				5	5-6	2-4	18	12-4, 26							
Data summary & special reports																								
Corr'n. filing, planning, misc.									10, 31	14			14	16	15	18	1							
Contacts																								
Washington	At Washington																				17-22			
O.B.R.C.	With repr. in field																							
Boston	At Boston								1-3						29, 30						10-11			
O.B.R.C.	With repr. in field																							
Concord	At Concord								12, 21	23, 28			3, 31	1, 7, 16	15, 20	27, 31	14				8-9			
O.B.R.C.	With repr. in field								29	17			2, 22, 30		26	4	3, 8							
Augusta	At Augusta									11, 12					25-26	8					1-2			
O.B.R.C.	With repr. in field									2			11, 19, 26		5, 13	2, 14, 24								
State Cooperator New Hampshire									21				31		20									
State Cooperator--Maine										11					26	8								
State Dir. Extension--N.H.									23												2			
State Dir. Extension--Maine										13											5			
Forestry College--N.H.									22															
Forestry College--Maine										12														
Forestry Associations																								
Forest Extension Specialist										14			16		28									
Forest Service																								
Forest Experiment Station									6-8, 20	16-17			10		22									
Special contacts																								
Agents*																								
F. J. Baker	Visit								19-20*	25-26					7-9*	29-30					12-13			
() *	Meeting																							
E. C. Barraclough	Visit								23-24*	21			20-30*			25-27					3-4			
() *	Meeting																							
S. H. Boomer	Visit								29*	10-19			10		23*						20-22			
() *	Meeting																							
W. J. Cullen	Visit								10	20			21-23			22-24 Fairs					6-8 Data			
() *	Meeting																							
T. L. Kane	Visit								26-27*				7-9		30-31*	17-18					29-30			
() *	Meeting																							
D. B. Keane	Visit								14-15*	30			1		14-16*						1-2			
() *	Meeting																							
T. J. King	Visit								22	23-24*			30		1-2	19-20*					31			
() *	Meeting																							
G. F. Richardson	Visit								12-13				2-3		18-19	15-16					27-28			
() *	Meeting																							
H. W. Robb	Visit								16-17*	27-28					11-13*						3-4			
() *	Meeting																							
S. D. Conner	Visit									2-3*			17-19		27-28*						6-7 Data			
() *	Meeting																							
D. S. Curtis	Visit									4-5*			11-12			8-10*					9-11 Data			
() *	Meeting																							
G. H. Kimball	Visit									6-7*			14-16			11-13*					23-25 Data			
() *	Meeting																							
W. E. Tarbox	Visit								9	9-10*			24-26			5-6*					13-14 Data			
() *	Meeting																							
Field Beta & Investigations																								
Miscellaneous										21-22 N.H. State														
Training men																								
Conferences																					15-17			13, 14 Agents
Leave of absence																					25-27			16-21
Special work																								

NOTE:--Names of County Agricultural Agents in parenthesis. Indicate meeting or visiting him at time of meeting or visiting B.R.C. Agent by date with asterisk.
In case B.R.C. Agent was not seen on same day, use two asterisks.

CALENDAR AND PROGRESSIVE RECORD OF WORK OF SPECIALIST
White Pine Blister Rust Control

District III--States of New York and Vermont.

Specialist--A. E. Fivaz, Year 1924

PROJECTS	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done	Plan	Done
Office work (largely at headq'ts.)																								
Weekly reports					3, 10, 17, 24, 31		7, 14, 21, 28		5, 12, 19, 26		2, 9, 16, 23, 30		7, 14, 21 28		4, 11, 18, 25		8, 15, 22, 29		6, 13, 19, 27		3, 10, 17 24		1, 8, 15, 22, 29	
Monthly reports and accounts					1		1		1		1		1		1		1		1		1		1	
Annual reports and plans									15-25														5-15	
Material for B.R. News Letter					12				10		10		10		10		10		10		10		10	
Observation & recomm. reports					22-23				11		6, 13, 20, 27		24-27 31		1, 28, 31		1, 9, 22, 25		4, 5, 21		7-9, 29 31			
Preparation educational mat'l.					10-11		1-2		5		1-2		1-6		2-6		12-12		4, 5, 21					
Data summary & special reports																								
Corr'p., filing, planning, misc.					8-12		1-2		5		1-2		1-6						4-5, 22, 25		7-9 29-31			
Contacts																								
Washington					At Washington															30-31				
O.B.R.C.					With repr. in field																			
Boston					At Boston									7-8								1-5		
O.B.R.C.					With repr. in field																			
Albany					At Albany							17				7-8		11-12		6-7 26-27		6		
O.B.R.C.					With repr. in field																			
Montpelier					At Montpelier																			
O.B.R.C.					With repr. in field																			
State Cooperator N. Y.												17				8				7		17		
State Cooperator Vermont										7														
State Dir. Extension N. Y.								30																
State Dir. Extension Vermont								13														17		
Cornell College of Forestry								20																
Syracuse College of Forestry											29-31													
N.Y.S. Forestry Association																								
Forest Extension Specialist																								
Forest Service																								
Forest Experiment Station																								
Special contacts													96											
Agents*																								
S. H. Fogg					Visit																			
(K. D. Scott)*					Meeting																			
E. G. Woodward					Visit																			
					Meeting																			
F. F. Franklin					Visit																			
(F. C. Smith)*					Meeting																			
B. H. Nichols					Visit																			
					Meeting																			
J. D. Kennedy					Visit																			
(Buckram)*					Meeting																			
P. K. Miller					Visit																			
(Little)*					Meeting																			
H. H. Knowles					Visit																			
()*					Meeting																			
H. A. Williams					Visit																			
(Pollard)*					Meeting																			
					Visit																			
()*					Meeting																			
N. H. Harpp					Visit																			
(Brucholtz)*					Meeting																			
G. D. Stevens					Visit																			
(Otis)*					Meeting																			
					Visit																			
()*					Meeting																			
W. E. Bradder					Visit																			
()*					Meeting																			
F. H. Rose					Visit																			
()*					Meeting																			
S. V. Holden					Visit																			
()*					Meeting																			
Field data and investigation																								
Miscellaneous																								
Training men																								
Conferences																								
Leave of absence																								
Special work																								

NOTE:--Name of County Agricultural Agents in parenthesis. Indicate meeting or visiting him at time of meeting or visiting B.R.C. Agent by date with asterisk. In case B.R.C. Agent was not seen on same day, use two asterisks.

Blister Rust Control Schedule for L.W.Hodgkins
May 1 - Dec. 31, 1924.

Table #96

Activities	Date	Detail Procedure - with dates
Control work on White Mt. National Forest	May	General Survey of area to be worked May 2 - 3
	1	Training of Field Asst. and scout " 5 -10
	to	Scouting area to be eradicated or Ribes in 1924 and marking plots requiring crew work " 12 -17
	31	Training of eradication crew " 23 -31
	June 1	Scouting area to be eradicated of Ribes - 1924 " 19 -22
	to July 12	Scouting area to be eradicated of Ribes 1925 June 2 -14 " 16 -30 July 1 -12
Federal Quarantine Inspection	Sept. 1 to Oct. 31	Reconnaissance of Pine and Ribes on entire National Forest
	Sept. 1 to Oct. 31	Record Work - odd times
	Sept. 1 to Oct. 31	Quarantine inspection of nursery stock in shipment by express, parcel post and freight at terminal, Kansas City, Mo. Sept. 3-Oct. 25
Scouting for Pine Infection and Laying out Damage Plots in Mass.	Nov. 1 to Dec. 31	Report on quarantine inspection at Kansas City - worked up at Taunton, Mass. Oct. 27 - 31
	Nov. 1 to Dec. 31	Scouting and laying out damage study plot in Essex Co. Nov. 3 - 8 Plymouth Co. " 10 -15 No. Worcester Co. " 17 -22 So. " " " 24 -29 Hampden " Dec. 1 - 6 Franklin " " 8 -13
Annual Leave	Dec. 15 to Dec. 31	

Blister Rust Control Schedule for William Thompson
June 15 - Sept. 15, 1924.

Table #97

Activities	Date	Detail Procedure
Checking of Ribes eradication and Ecological plots at Eau Galle	June 15 to July 5	Checking of Eradication plots # June 15 - June 25 Checking of Ecological plots # June 26 - July 5
Summary and analysis of Eau Galle experimental data	July 7 to Sept. 15	Summary of 1923 field data July 7 - Aug. 16 " " 1922 and 1923 field data Aug. 18 - 23 Analysis of field data 1922 and 1923 Aug. 25 - Sept. 6 Summary of report of 1924 rechecking of plots Sept. 8 - 15

Summary of 1957-58 Survey of the
State of the Fishery

Activity	Date	Details
<p>Grading of fish traps - one mile section and individual traps at San Luis</p>	<p>June 15 July 5</p>	<p>Unloading of fish traps at June 15 - June 20 Unloading of traps at June 20 - July 5</p>
<p>Grading and analysis of fish traps collected data</p>	<p>July 15 to Sept. 15</p>	<p>Unloading of fish traps at July 15 - July 20 Unloading of traps at July 20 - July 25 Unloading of traps at July 25 - Aug. 10 Unloading of traps at Aug. 10 - Sept. 15</p>

Estimate of Federal Expenditures for Strictly Federal
Blister Rust Control Personnel in Northeastern and
Lake States--Period March 1, 1924 to June 30, 1924.

Table 98

Name	Period of Work	Salary Rate per Month	Total Salary	Total Expenses	Grand Total
Filler	March 1 to June 30, 1924	\$270.	\$1080.	** \$325.	\$1405.
Endersbee	"	190. & Bonus	& Bonus 760.	400.	1160.
Fivaz	"	170.	680.	400.	1080.
Specialist	June 1- 30, 1924	150.	150.	100.	250.
Stimson	March 1 to June 30, 1924	140.	560.	-	560.
* Hodgkins	May 1 to June 30, 1924	150. & Bonus	300. & Bonus	225.	525.
Thompson	June 15- 30, 1924	170.	85.	75.	160.
Misc. Ex- penses added to E.C.F. Tele. & Teleg. Maps, etc. Storage, re- pairs, temp. clerk and Assistants.	March 1 to June 30, 1924			300.	300.
TOTALS			\$3615.	\$1825.	\$5440.

*-Hodgkins salary and expenses March 1 to April 30, 1924 charged to federal quarantine inspection-(Not included in this estimate). **--For the balance of the fiscal year 1924-period March 1 to June 30, the total estimated expenditures under letter of E. C. Filler is \$625. This includes all expenses at Boston Office, hired temporary help, etc. In this estimate no work is planned for Cass Lake, Minn. Expenditures for Thompson charged to project-experimental, for Stimson to project--Boston Office, all other expenditures to federal supervision and inspection. Hodgkins will aid in control project on White Mountain National Forests during May and June.

Budget of Federal Expenditures for Strictly Federal Blister Rust
Control Personnel in Northeastern and Lake States--Fiscal Year 1925.

Federal Funds Allotted-----July 1, 1924 to June 30, 1925---

Detailed Estimate of Federal Expenditures for Strictly Federal Personnel
in Northeastern and Lake States..Fiscal Year 1925.

Table #99

Name	Period Of Work	Salary Rate per Month	Total Salary	Total Expenses	Grand Total
Filler	Year	\$270.	\$3240.00	\$1300.	\$4540.00
Endersbee	"	190. & Bonus	2280.00 & Bonus	1500.	3780.00
Fivaz	"	170.	2040.00	1500.	3540.00
? (Specialist)	"	150.	1800.00	1500.	3300.00
Stimson	"	140.	1680.00	-	1680.00
* Hodgkins	July-Aug.1924. Oct.15,1924- Feb.28,1925. May15-June30,1925	150 & Bonus	* 1200.00 & Bonus	1050.	2250.00
Thompson	July1-Sept.15,1924 June 15-30, 1925	170.	510.00	350.	860.00
Assistant to Thompson (Eau Galle	July 1 to Aug.15,1924	125.	187.50	-	187.50
Misc. Expenses- Added to E.C.F.) for Tele.& Teleg., Maps, drafting, auto storage, re- pairs, etc., Temp. clerks & Assist.	Year			800.	800.00
TOTALS			\$12,937.50	\$8,000.	\$20,937.50

*-Hodgkins used on federal quarantine inspection Sept. 1 to Oct. 15, 1924
and March 1 to May 15, 1925.

Salary increases for federal men not included in above
if tabulation.

Additional Federal Expenditures (Experimental Work Carried on at Cass Lake, Minn.)

Assistant to Thompson	July1-Sept.15, 1924.	\$100.	\$250.00	\$187.50	\$437.50
Scout and General Asst.	"	100.	250.00	-	250.00
Foreman	"	100.	250.00	-	250.00
7 Laborers	July 1 to Aug. 15, 1924	\$3.60 per day	1000.00	-	1000.00
Misc. Expenses	July 1 to Sept. 15, 1924	-	-	350.00	350.00
TOTALS			\$1,750.00	\$537.50	\$2,287.50

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RESEARCH REPORT

1954-1955

DATE	NAME	ROOM	TIME	REMARKS
10/1/54	W. H. R.	215	9:00	...
10/2/54	W. H. R.	215	9:00	...
10/3/54	W. H. R.	215	9:00	...
10/4/54	W. H. R.	215	9:00	...
10/5/54	W. H. R.	215	9:00	...
10/6/54	W. H. R.	215	9:00	...
10/7/54	W. H. R.	215	9:00	...
10/8/54	W. H. R.	215	9:00	...
10/9/54	W. H. R.	215	9:00	...
10/10/54	W. H. R.	215	9:00	...
10/11/54	W. H. R.	215	9:00	...
10/12/54	W. H. R.	215	9:00	...
10/13/54	W. H. R.	215	9:00	...
10/14/54	W. H. R.	215	9:00	...
10/15/54	W. H. R.	215	9:00	...
10/16/54	W. H. R.	215	9:00	...
10/17/54	W. H. R.	215	9:00	...
10/18/54	W. H. R.	215	9:00	...
10/19/54	W. H. R.	215	9:00	...
10/20/54	W. H. R.	215	9:00	...
10/21/54	W. H. R.	215	9:00	...
10/22/54	W. H. R.	215	9:00	...
10/23/54	W. H. R.	215	9:00	...
10/24/54	W. H. R.	215	9:00	...
10/25/54	W. H. R.	215	9:00	...
10/26/54	W. H. R.	215	9:00	...
10/27/54	W. H. R.	215	9:00	...
10/28/54	W. H. R.	215	9:00	...
10/29/54	W. H. R.	215	9:00	...
10/30/54	W. H. R.	215	9:00	...
10/31/54	W. H. R.	215	9:00	...

...

...

...

DATE	NAME	ROOM	TIME	REMARKS
11/1/54	W. H. R.	215	9:00	...
11/2/54	W. H. R.	215	9:00	...
11/3/54	W. H. R.	215	9:00	...
11/4/54	W. H. R.	215	9:00	...
11/5/54	W. H. R.	215	9:00	...
11/6/54	W. H. R.	215	9:00	...
11/7/54	W. H. R.	215	9:00	...
11/8/54	W. H. R.	215	9:00	...
11/9/54	W. H. R.	215	9:00	...
11/10/54	W. H. R.	215	9:00	...
11/11/54	W. H. R.	215	9:00	...
11/12/54	W. H. R.	215	9:00	...
11/13/54	W. H. R.	215	9:00	...
11/14/54	W. H. R.	215	9:00	...
11/15/54	W. H. R.	215	9:00	...
11/16/54	W. H. R.	215	9:00	...
11/17/54	W. H. R.	215	9:00	...
11/18/54	W. H. R.	215	9:00	...
11/19/54	W. H. R.	215	9:00	...
11/20/54	W. H. R.	215	9:00	...
11/21/54	W. H. R.	215	9:00	...
11/22/54	W. H. R.	215	9:00	...
11/23/54	W. H. R.	215	9:00	...
11/24/54	W. H. R.	215	9:00	...
11/25/54	W. H. R.	215	9:00	...
11/26/54	W. H. R.	215	9:00	...
11/27/54	W. H. R.	215	9:00	...
11/28/54	W. H. R.	215	9:00	...
11/29/54	W. H. R.	215	9:00	...
11/30/54	W. H. R.	215	9:00	...

Recapitalation of Federal Expenditures by Projects for Strictly Federal
Personnel in Northeastern and Lake States--Fiscal Year 1925.

Table #100

Project	Name	Period of Work	Monthly Salary Rate	Total Salary	Total Expenses	Grand Total
Federal Supervis- ion & Inspection	E.C.Filler	Year	\$270.	\$3240.00	\$1300.	\$4540.00
	Dist. I		190.	2280.00		
	W.J.Endersbee	"	& Bonus	& Bonus	1500.	3780.00
	Dist. III					
	A.E.Fivaz	"	170.	2040.00	1500.	3540.00
	Dist. II					
	?	"	150.	1800.00	1500.	3300.00
	*	July-Aug.1924				
	Nat. Forest	May 15--June	150.			
	L.W.Hodgkins	30, 1925	& Bonus	525.00	400.	925.00
	TOTAL			\$9885.00	\$6200.	\$16,085.00
Boston Office	K.K.Stimson	Year	140.	1680.00	-	1680.00
Experiment- al Work	(Eau Galle)	July 1--Sept. 30, 1924. June				
	Thompson	15-30, 1925	170.	510.00	350.	860.00
	Assistant to Thompson	July 1 to Aug. 15, 1924	125.	187.50	-	187.50
	TOTAL (Eau Galle)			697.50	350.	1047.50
	Hodgkins	Oct.15, 1924 to Feb. 28, 1925	150. & Bonus	675.00 & Bonus	650.	1325.00
	TOTAL--All Experm. Work			1372.50	1000.	2372.50
Misc. Expenses (Tele. and teleg., maps, drafting, auto storage & re- pairs, temp. clerks and field Asst's.	Filler	Year			800.	800.00
GRAND TOTALS				\$12,937.50	\$8000.	\$20,937.50

*-Hodgkins used on quarantine inspection-Sept.1-Oct.15,1924 and March 1, to May 15, 1925. This summary does not allow for any experimental work at Cass Lake, Minn.

Salary increases for federal men not included in above-
tabulation.

ESTIMATE OF FEDERAL BLISTER RUST CONTROL EXPENDITURES BY
PERSONNEL & PROJECTS IN NORTH STARR & LAKE STATES - FISCAL YEAR - 1925.

Table 101

Federal & For & Cooperative Expenditures.

Project	State	Name	Period	Rate Per Month	Total Salary	Total Expenses	Grand Total
Supervision	Maine	Frost	Year	\$208.33	\$2500.	\$150.	\$2650.
	N. H.	Newman	"	208.33	2500.	400.	2900.
		Corliss	"	\$7 per day W.A.P.	2100.	State	2100.
	Total for State for Project				4600.	400.	5000.
	Vt.	Riley	July 1 - Sept. 15, 1924	200.	500.	300.	800.
		Assistant State Leader	June 30, 1925	150.	1425.	950.	2375.
		Total for State for Project		-	1925.	1250.	3175.
	Mass.	Perry	Year	208.33	2500.	100.	2600.
	R. I.	Anderson	1/3 Time	165.	660.	400.	1060.
	Conn.	Eliley	Year	145.83	1750.	100.	1850.
	N. Y.	Amadon	"	188.33	2260.	100.	2360.
Totals for Project				-	16195.	\$2,500.	18695.
Education	Maine	Donner	Year	155.	1860.	*820.	2680.
		Curtis	"	155.	1860.	*820.	2680.
		Kimball	"	155.	1860.	*820.	2680.
		Warbox	"	155.	1860.	*820.	2680.
		Violette	"	-	1.	-	1.
		Lambert	July 1-Sept. 30, 1924	100.	300.	180.	480.
		Hasty	"	125.	375.	-	375.
		Storch	"	125.	375.	-	375.
		Josa	"	125.	375.	-	375.
		Walker	"	125.	375.	-	375.
		Jonas	"	125.	375.	-	375.
		-	"	125.	375.	-	375.
		-	"	125.	375.	-	375.
		-	"	125.	375.	-	375.
	Balance Available to employ Camp Agents - May & June 1925			-	1145.	-	1145.
	Total for State for Project				-	\$11890.	3460.
	N. H.	Baker	Year	155.	1860.	1200.	3060.
		Barreclough	"	155.	1860.	1200.	3060.
		Boomer	"	150.	1800.	1200.	3000.
		Challen	"	160.	1920.	1200.	3120.
		Kane	"	145.	1740.	1200.	2940.
		Keane	"	140.	1680.	1200.	2880.
		King	"	180.	2160.	1200.	3360.
		Richardson	"	130.	1560.	1200.	2760.
		Robb	"	145.	1740.	1200.	2940.
		Clerk -	"	-	-	-	-
		I. B. White	"	15.	180.	-	180.
		Misc.	"	-	-	700.	700.
	Total for State for Project				-	16500.	11,500.
	Vt.	Assistant State Leader	July 1-Sept. 30, 1924	150.	375.	375.	750.
		Bradger	Year	140.	1680.	1000.	2680.
		Molden	"	150.	1800.	1000.	2800.
		Rose	"	150.	1800.	1000.	2800.
		Clerk	1/3 Time	50.	600.	-	600.
	Totals for State for Project				-	\$6255.	\$3250.
	Mass.	Brockway	Year	160.	1920.	1100.	3020.
		Doore	"	130.	1560.	1100.	2660.
		McNerney	"	150.	1800.	1100.	2900.
		Merrick	"	160.	1920.	1100.	3020.
		Reop	"	170.	2040.	1100.	3140.
		Wheeler	"	150.	1800.	1100.	2900.
		Clave	Dec. 1-1924	-	-	-	-
		Dickey	Apr. 30, 1925	125.	625.	300.	925.
		-	"	117.50	585.	300.	885.
		-	"	125.	625.	300.	925.
	Total for State for Project				-	\$12875.	\$7,500.
	R. I.	Anderson	Year 2/3 Time	165.	1320.	800.	2120.
		McDonnell	"	135.	1620.	1000.	2620.
	Conn.	Hick	"	135.	1620.	1000.	2620.
		-	"	125.	1500.	1000.	2500.
	Total for State for Project				-	\$4740.	\$3000.
	N. Y.	Harpp	Year	130.	1560.	1100.	2660.
		(New Man)	"	130.	1560.	1100.	2660.
		Williams	"	135.	1620.	1100.	2720.
		Stevens	"	130.	1560.	1100.	2660.
		Snovles	"	155.	1860.	1100.	2960.
		Kennedy	"	145.	1740.	1100.	2840.
		Miller	"	130.	1560.	1100.	2660.
		Roy	"	150.	1800.	1100.	2900.
		Woodward	"	135.	1620.	1100.	2720.
		Franklin	"	150.	1800.	1100.	2900.
	Wis.	Nichols	"	135.	1620.	State	1620.
		(New Man)	"	130.	1560.	1100.	2660.
	Total for State for Project				-	\$19740.	12,100.
	Mis.	Himman	Year	188.33	1466.65	933.35	2400.
	Minn.	Pilottson	"	-	2000.	Other Sources	2000.
Totals for Project				-	76786.65	42,545.35	119332.
Supervision and Education	Maine	Year	-	-	\$14390.	3,610.	18000.
	N. H.	"	-	-	21100.	11,900.	33000.
	Vermont	"	-	-	8180.	4,500.	12680.
	Mass.	"	-	-	16375.	7,600.	23975.
	R. I.	"	-	-	1960.	1,200.	3160.
	Conn.	"	-	-	6490.	3,100.	9590.
	N. Y.	"	-	-	22000.	12,200.	34200.
	Wisconsin	"	-	-	1466.65	933.35	2400.
Education	Minnesota	"	-	-	2000.	-	2000.
	Totals - All States				-	92981.65	\$45,045.35

* Expenses of Maine Agents to be paid from state funds - April 1 - June 30, 1924.

Recapitulation of Federal Blister Rust Control Expenditures
by Projects in Northeastern & Lake States - Fiscal Year 1925.

Table #102

	Project	Total Salary	Total Expenses	Grand Total
\$ for \$ Federal Expendi- tures	Supervision	\$16,195.00	\$2,500.00	\$18,695.00
	Education	76,786.65	42,543.35	119,330.00
	Sub-Total	92,981.65	45,043.35	138,025.00
*Federal Expendi- tures for strictly Federal Projects	Supervision & Inspection	9,885.00	6,200.00	16,085.00
	Boston Office	1,680.00	-	1,680.00
	Experi- mental (Filler)	1,372.50	1,000.00	2,372.50
	Miscl. Ex- penses	-	800.00	800.00
	Sub-Total	\$12,937.50	\$8,000.00	\$20,937.50
Grand Total -	All Projects	\$105,919.15	\$53,043.35	\$158,962.50

*Salary increases for federal men ^{working from Boston Office} not included.

Salary Recommendations for Federal Men
Effective July 1, 1924.

<u>Name</u>	<u>Present Salary</u>	<u>Recommended Salary</u>	<u>Date of Last Salary Increase</u>
Filler-----	\$3240. Per Year	?	July 1, 1922
Endersbee-----	\$2280. & Bonus	\$2500. & Bonus	July 1, 1923
Fivaz-----	\$2040. No Bonus	\$2400. No Bonus	July 1, 1923
Hodgkins-----	\$1800. & Bonus	\$1920 & Bonus	July 1, 1922
Stimson-----	\$5.40 Per Day W.A.E.	\$5.80 Per Day W.A.E.	Nov. 1923

If possible would prefer to have Stimson appointed as an agent at \$150. per month.

E. C. Filler
Pathologist

1907 Jan. 18/19

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Miscellaneous Remarks

Records

The blister rust control record system as a whole appears to fully meet the needs of the field men and the federal and state offices. No changes are contemplated in the records except to change the terminology in a few of the forms before an additional supply is printed. In all cases where objections and criticisms have been made of the records, it has been due to a misunderstanding of their use. When the proper procedure was explained all difficulties have been promptly overcome. The field men have now had a years experience in the use of these records, consequently good results should be obtained along this line in 1924. In the future the B.R.E. 3 a annual reports will be compiled at the Boston Office, from the B. R. E. 3 forms submitted by the agents, rather than at the state offices. This change in procedure was made at the request of the state leaders at the annual blister rust control conference in February, 1924.

Checking

An analysis of the blister rust control agents monthly reports and the yearly state reports shows the agents are not sufficiently checking the Ribes eradicating work. During 1924, a special effort will be made to correct this weakness.

Commendation

Stimson has proved to be a very valuable office assistant, and I wish to take this opportunity to commend his good work. In the preparation of this report he has been most diligent; his services were especially helpful in assisting in the compilation of the field data for the summary tables.

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